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GUEST EDITORIAL

Recent Advances in Cardiac Surgery

NOT since the Oklahoma Land Rush has an area been opened, explored, and settled with the speed that has characterized the development of cardiac—particularly *intra*cardiac—surgery. The distinction is a practical one. Operations related to the pericardium and the great vessels can be carried out under direct vision. Many times they are curative in the sense that surgical correction of inguinal hernia is curative, and it is usually easy to appraise their value. On the other hand, with few exceptions, intracardiac procedures have been "blind". Though deliberate and accurate so far as the sense of touch permits, rarely are they curative in the sense that the division of a patent ductus is curative. They do not aim to cure but to improve. Objective measurement of this improvement is a major problem for in no other branch of surgery do subjective factors play a greater part, and in no other group of patients is there a greater emotional charge.

The recent literature which deals with cardiac surgery contains an impressive list of technical advances. It also provides new and revised concepts of pathology and physiology based on observations in the living. It reveals, however, a surprising deficiency of clinical and laboratory follow-up. In part this deficiency can be justified on the ground that progress is not served by caution that condemns *all* conclusions to a decent waiting period of five years. On the other hand there is real need for critical evaluation as we progress.

One of the best ways to supply this need is accurate clinical appraisal of an individual patient's problem in terms of the natural history of a disease. To do this requires time, patience, and experience, in medical management. It is essential to recognize both the limitations of "conservative" measures, and also the situation where operation represents a poor substitute or short-cut for careful management. Survival figures are useful, but only if adequate "controls" are available. The fact that a patient refuses surgery does not necessarily make him a control, and even in this enlightened age it may be permissible for a patient to die without benefit of surgery.

Statements of improvement are notably hard to assess. If they are based upon increase in work tolerance, decrease in objective signs and the need for medications or dietary restrictions, they may mean a great deal. Insofar as such statements are objective they are among the best measurements we have, particularly if they reflect no real change in quality and enthusiasm of medical management. Certain readily available laboratory studies such as measurement of heart size or peripheral cyanosis are also reliable indices. Most useful of all laboratory data is that obtained by cardiac catheterization, especially if observations are made in the same laboratory under comparable conditions before and after a given procedure. This is a method of study which is extremely valuable in clinical investigation but we are only beginning to learn its clinical significance. For example, in pulmonary stenosis we can measure the degree of right ventricular hypertension that exists, but cannot say, except arbitrarily, what a critical level may be. To do this will require many observations over a long period of time. Mitral regurgitation is another example. This is a difficult

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lesion to study, complicated, as it usually is, by some measure of stenosis.

It is unreasonable to insist that all patients undergoing cardiac surgery be studied exhaustively in the laboratory. However, it is reasonable to require that any new procedure be subjected to careful clinical and laboratory control and that we do not confuse crusade with progress.

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Floral Eponym

LOBELIA

LOBEL, MATTHIA DE, (1538-1616)

Matthias de Lobel, a famous botanist and physician, was born at Lille and took his doctor's degree at Montpellier in 1568. He practiced at Antwerp and Delft where he was the physician to William of Orange. Later he entered the service of James I of England as botanist and physician. He was the first to attempt to classify plants by structure. He died at Highgate March 2, 1616.

much used in the garden for edging plants. L.*inflata* is the source of several alkaloids,

Lobelia is a large genus of showy-flowered annual or perennial herbs. They are

including lobeline, which have emetic, respiratory, and vasomotor action.

USES OF PROCAINE FOR PURPOSES OTHER THAN THE PRODUCTION OF LOCAL ANESTHESIA

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Seldom if ever in the history of pharmacology and therapeutics has a single chemical or drug been found to possess as many diverse uses as have been discovered for procaine. While it has found wide application as a local anesthetic since its introduction by Einhorn in 1905, its uses for purposes other than the production of local anesthesia in the conventional manner have been discovered for the most part during the past decade. On first thought one might be inclined to suggest morphine or one or another of the antibiotics—perhaps penicillin or aureomycin—as drugs also possessing extraordinarily wide application. Unquestionably this is true of these latter drugs, but never-the-less it appears likely that procaine deserves a place alone, at least for the present. Morphine is used under many diverse conditions, but these conditions usually are characterized by a single symptom or related symptoms (pain and its associates) which call for its use. Similarly, the antibiotics are used for a single purpose, the control of infections by microorganisms, though it is admitted that the symptoms and diseases which may be so controlled often present quite varied pictures. Probably some of the systemic applications of procaine depend for their usefulness on its action as a local anesthetic, while others appear to be associated with its antihistaminic properties, and perhaps still others on properties not yet fully understood. Whatever may be the underlying explanations undoubtedly procaine possesses an extraordinarily wide field of usefulness. A reasonable degree of freedom from prolonged or permanent pharmacological effects of an unfavorable nature, and the rapidity with which it is destroyed in the body contribute to its relative safety. However, one should not ignore the fact that disagreeable, or even disastrous results, have been reported.

In preparing this review no attempt has been made to include the entire literature concerning procaine. Rather, it has been the author's intention to refer to those papers which provide the foundation for the many newer uses of this drug which are not directly associated with the production of local anesthesia by conventional methods. While a serious effort has been made to adhere to this intention it is not unlikely that there have been omissions. It is hoped that these will not be of a serious nature.

INTRACTABLE PAIN

In many instances the intravenous administration of procaine has been accompanied by relief of severe pain not afforded by more conventional procedures. According to Gordon[1] the earliest recorded intravascular injection of a local anesthetic agent was made by Goyanes of Spain who, in 1908, gave such an agent intraarterially for the production of anesthesia in extremities after the application of a tourniquet. This was followed a year later by the report of August Bier[2] of Bonn, Germany, who practiced the intravenous injection of local anesthetic agents for a similar purpose. Bier first applied an Esmarch bandage to expel the blood from the vascular bed, after which a tourniquet was applied to prevent entry of the drug into the general circulation. Apparently these early practices were received with little enthusiasm by the medical profession because it was not until thirty years or more later that the practice of intravascular injection of local anesthetics was given a critical reexamination. In his book on *Clinical Anesthesia* published in 1942 Lundy[3] suggests the intravenous injection of about 20 cc. of 1% procaine hydrochloride solution for the relief of intolerable pruritus in certain greatly jaundiced patients. The following year Gordon[1] appears to have touched off widespread interest in this application of procaine by his use of it to control pain in a series of ten cases of severe burn. According to Gordon pain originating in the burned areas was relieved promptly without any obvious local anesthetic effect on normal tissues adjacent to these areas.

Intravenous procaine has been found to possess a powerful capacity for relieving pain of both sympathetic and somatic origin. According to Graubard and Ritter[4] procaine becomes seven to eight times more concentrated in inflamed tissues than in normal because of increased capillary permeability in the

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damaged or diseased tissue responsible for the pain. In its action on nerves it appears to follow the generalization that the smallest fibers are affected first; that is, the sympathetic fibers and those conducting pain impulses. Motor fibers generally are not involved except with much higher concentrations. Whether or not intravenous procaine in small to moderate amounts will provide relief from pain in areas in which there is no inflammation or increased capillary permeability has not been ascertained with certainty. Probably this question is of limited practical importance in any event, since most areas in which pain originates are likely to exhibit these changes which favor concentration of procaine in effective amounts.

The types of pain for which procaine has been found effective are many and varied. McLachlin[5] found it superior to morphine in the control of post-operative pain; Graubard, Robertazzi and Peterson[6] and Allen, Crossman and Lyons[7] used it with success in angina pectoris; Graubard, Kovacs and Ritter[8] found it effective in destructive arthritis; Barber and Tovell[9] used it in thrombophlebitis; Stein[10] found it helpful in intermittent claudication of vascular disease; Allen, Crossman and Lyons[7] used it for the relief of pain in a case of herniated nucleus pulposus prior to surgical intervention; Thomas and Kamath[11] administered procaine orally for the relief of pain in peptic ulcer; Perroni[12] found that migraine may be relieved by the intravenous administration of procaine in many instances in which it is refractory to other forms of treatment; and Lemoine[13] found intravenous procaine capable of controlling pain in biliary and renal colic.

In a highly informative paper Graubard and Peterson[14] report their observations on the effectiveness of intravenous procaine in a wide variety of pathological conditions. In most instances pain was a prominent feature. The following list is prepared from this paper, with an indication of the nature of the results obtained in each instance:

1. traumata—good.
2. fractures—controls post reduction pain, but not a satisfactory anesthetic for reduction.
3. post-reduction arthralgia—good.
4. sprains—good.
5. traumatic arthritis—good.
6. myofascitis—helpful.
7. herniated intervertebral disk—not helpful.
8. post-operative pain—good.
9. reflex sympathetic dystrophy—dramatic.
10. head injuries—sometimes helpful.
11. rheumatoid arthritis—helpful.
12. acute rheumatic fever—results were encouraging in the single severe case so treated.
13. neuritides—variable; not helpful in tic douloureux.
14. vascular diseases—often helpful.
15. arterial embolism—marked improvement in two cases.
16. thrombophlebitis—results gratifying.
17. subdeltoid bursitis—satisfactory.
18. osteoarthritis—generally good.
19. acute poliomyelitis—relief from pain.
20. chronic poliomyletis—improvement.
21. congenital spastics—improvement.
22. paralysis agitans—some improvement, but slow.

Graubard and Peterson[14] observed that the simultaneous administration of vitamin C was helpful in preventing complications which sometimes are associated with the intravenous administration of procaine. In a single case of hernia of the nucleus pulposus no relief from pain was obtained, a fact which these authors consider a valuable sign in the differential diagnosis of low backache. However, Allen, Crossman and Lyons[7] found intravenous procaine effective in relieving pain in such a case confirmed at operation.

Graubard and Peterson[15] gave a total of 1894 intravenous injections of procaine to a series of 250 patients. Of these 54 were cases of rheumatoid arthritis, 42 were of arthritis due to injury, and 154 were cases of degenerative diseases of the joints. The standard dose or "procaine unit" was 4 mg. of procaine hydrochloride per kg. administered as 0.1% solution during a period of 20 minutes. There was no mortality or morbidity, and the results obtained were considered satisfactory. Most patients obtained considerable relief from pain. On the other hand, Marton, Spitzer and Steinbrocker[16] found procaine generally disappointing in the treatment of 33 cases of painful, chronic neuro-musculo-skeletal disorders. Of these, only one patient showed marked improvement, 4 moderate improvement, and there was one fatality attributed to procaine. The dose administered was 6 mg. per kg. during a period of 20-30 minutes.

Keats, D'Allessandro and Beecher[17] found procaine disappointing as a therapeutic agent for the relief of post-operative pain. In a series of 53 patients, saline, procaine and morphine were administered intravenously. The saline was given first as

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a placebo; those patients not relieved by this measure were then given 4 mg. per Kg. of procaine, and if that also proved ineffective 8 mg. of morphine per 70 Kg. were administered. Of these patients 20% obtained relief from the saline, 40% from the procaine, and 70% from morphine. It should be noted that the relatively low figure of 70% with morphine was obtained on patients who had already been found resistant to procaine. The opinion expressed by these authors is that "The analgesia produced by intravenous procaine was accompanied by frequent unpleasant and sometimes serious-side-actions. Unless procaine, administered by this route, can be demonstrated to produce beneficial effects on specific disease processes, it has no place in the treatment of pain."

It is difficult to account for the widely different results obtained by various investigators in this field. Graubard and Peterson[15] offer the explanation that some investigators used too little procaine to accomplish the result and too little ascorbic acid to control the undesirable side effects. However, it is doubtful if the earliest investigators used any ascorbic acid at all, and yet quite favorable results were reported in many instances. Presumably some of these discrepancies may be removed by carefully controlled observations conducted jointly by two or more groups whose previous results have been in disagreement. Surely the problem is of sufficient importance to justify a concerted effort to obtain its solution.

General Anesthesia

Allen[18] developed the idea mainly from the work of Gordon[1] on burns and of McLachlin[5] on post-operative pain that the action of procaine might be extended to the relief of pain in obstetrical cases. This proved to be true, a fact which will receive further consideration later. It is mentioned at this point because its obstetrical use apparently led to its application by Allen, Crossman and Lyons[7] in the production of general surgical anesthesia. In these surgical cases 1% procaine hydrochloride in 5% glucose solution was administered by intravenous infusion, the rate being varied to suit the immediate needs of the case. While a rate of infusion of a few cc. per minute may be sufficient to relieve pain in many instances without any appreciable dulling of consciousness, a much higher rate was found necessary to produce loss of consciousness and anesthesia. A change in depth of anesthesia promptly followed a change in rate of infusion. At the faster rates muscular twitching or even mild convulsive seizures occurred. These effects subsided within a minute or two on discontinuing the infusion or they could be controlled by the intravenous administration of one of the barbiturates such as amobarbital (Amytal). Recovery from such anesthesia is prompt and practically devoid of undesirable after effects.

Interest in intravenous procaine as an anesthetic agent spread rapidly. Bittrich and Powers[19] report 17 cases of thoracic surgery in which cyclopropane, ether, nitrous oxide and thiopental were used at one time or another to reinforce the anesthetic effect of procaine and to assist in controlling its convulsant tendency under full anesthetic dosage. Bronchospasm and coughing were relieved, the patient tolerated the operations better, there was less evidence of shock, and recoveries from anesthesia were less difficult than those customarily seen. Fraser and Kraft[20] report over 1500 intravenous administrations of procaine during a period of approximately three years. These authors used a mixture of 0.05% to 0.1% procaine hydrocloride and 0.1% to 0.2% thiopental sodium in 5% glucose saline solution rather than the stronger solution used by Allen *et al*,[7] although 1% procaine solution was kept at hand for use in the event that the weaker solution did not meet the requirements. Usually the mixture was used in combination with spinal or inhalation anesthesia. Edmonds, Comer, Kennedy and Taylor[21] used intravenous procaine in 400 anesthesias, and found it of greatest value in thoracic operations, thyroidectomies and in many superficial procedures for which one wishes to maintain light anesthesia. In the average adult patient a total dose of 1 to 3 gm. per hour was found sufficient. These authors stress the danger of circulatory depression from an overdose and recommend utmost caution to avoid it. Taylor, Stearns, Kurtz, Henderson, Sigler and Notle[22] report 211 administrations of procaine intravenously, mostly for thoracic surgery. Usually anesthesia was induced with thiopental, either with or without curare, after which the infusion of procaine (1% in 5% glucose) was begun. This was supplemented with nitrous oxide-oxygen by inhalation, and with additional thiopental if necessary. The following advantages were noted: (a) the

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cough reflex is depressed enough to allow an endotracheal airway in most patients during light anesthesia without coughing; (b) procaine is relatively effective in preventing cardiac arrhythmias during intrathoracic operations; and (c) sweating is depressed, the skin being dry and warm. Doud[23] lists 80 cases of which 38 were obstetrical and the remainder representative of a general surgical practice. Again 1% procaine in 5% glucose solution was used in association with one of the barbiturates, frequently amobarbital. The largest amount of procaine used by Doud in any one case was 10.5 grams during a period of two hours and ten minutes. The author describes the anesthetic procedure in considerable detail.

OBSTETRICAL ANALGESIA AND ANESTHESIA

Apparently Allen[18] is responsible for the introduction of intravenous procaine medication for this purpose. His report and those of Johnson and Gilbert[24] and Doud[23] are highly informative. Several important advantages have been noted: (a) during labor pain may be controlled satisfactorily without producing so much central depression that the patient is unable to understand instructions and to cooperate; (b) strength of uterine contractions is not decreased, nor is there undue prolongation of labor —at least not in most instances; and (c) procaine does not appear to cross the placental barrier so that the baby is not affected by the anesthetic agent.

CARDIAC ARRHYTHMIA

The effect of procaine in contributing to the control of cardiac irregularities, particularly those associated with cyclopropane anesthesia and cardiac surgery, has been mentioned above. However, the problem of arrhythmia is not simple. There are many circumstances and contributory factors which make of it something that is exceedingly complex. The control of arrhythmia, particularly during surgery, is ably discussed by Harken and Norman[25] and an extensive bibliography on the subject is given by them. Others who have contributed to this phase of the subject include Kochmann, and Daels[26], Mautz[27], Beck and Mautz[28], Shen and Simon[29], Burstein, Marangoni, DeGraff and Rovenstein[30], Dawes[31], Burstein[32], and den Otter[33]. Depending on circumstances it may be applied by intravenous injection, intracardiac injection, or topically to the surface of the heart.

VASCULAR DISEASE

The first application of procaine by intravenous injection to peripheral vascular disease appears to have been made by Stein[10]. Twenty-five patients received daily infusions on 10 consecutive days of 1000 cc. of 0.5% procaine in saline or glucose. In 15 cases of arteriosclerosis obliterans all but one had complete relief from pain and claudication at the end of the ten day period; of 8 patients followed for 6 months or longer relief persisted in 6. In 7 cases of diabetic gangrene relief from pain was obtained, although the response was not as satisfactory as in the previous group. In 3 cases of arteriosclerosis obliterans with ulcerations decided relief was obtained in 2, with improvement in the ulcerative process. Some or all the patients in each group were given glucose or saline solution alone for control purposes. In no instance did this cause improvement, and in some the discomfort appeared to be even greater.

HYPERTENSION

In the treatment of hypertension Beckmann[34] found that a considerable drop in blood pressure (50-100 mm. mercury in many cases) could be obtained by repeated intravenous injections of procaine. The preparation used by Beckmann is known as "melcaine", and contains procaine hydrochloride dissolved in a vehicle containing honey,—hence, its name. Injections were made twice daily over a period of several weeks. The solution contained as much as 2% procaine and 40% honey in some instances. The lower blood pressure often persisted for as long as several months. Pimps[35] reports similar results from the use of the same preparation in 49 hypertension cases whose ages ranged from 60 to 95 years. No untoward reactions were observed.

ALLERGIC PHENOMENA

Several investigators have found procaine to be highly effective in the treatment of various allergic phenomena. In some instances the drug was administered orally, and in others intravenously. Applebaum, Abraham and Sinton[36] report a case of serum sickness which responded satisfactorily to intravenous procaine therapy; State and Wangensteen[37] report the successful treatment of delayed serum sickness with procaine; Dressler and Dwork[38] treated a case of penicillin reaction with satisfactory results; and Luddecke[39] reports a variety of allergic phe-

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nomena which responded satisfactorily to procaine administered orally, usually in combination with ascorbic acid. Many of Luddecke's patients had received previous unsuccessful treatment with one or another of the antihistaminics.

MISCELLANEOUS

In addition to the disorders mentioned previously, still others have been treated with procaine with varying degrees of success. Lewy[40] found intravenous procaine useful in the treatment of tinnitus aurium in certain cases but not in all. Since tinnitus probably is the result of a variety of causes it is not surprising that a single mode of treatment should prove ineffective in some cases. Jensen[41] observed that the addition of 0.2% procaine to blood prior to transfusion reduced venospasm at the point of injection so that transfusion proceeded more rapidly. Roka and Lajtha[42] used procaine orally for the abolition of pyloric spasm with striking results. A dose of 50 to 100 cc. of 1% solution was found to keep the pylorus open for several hours, it had no side effects, and it could be repeated twice daily for several days. The authors recommend the procedure in cases of functionally spastic pylorus, and as a preparation for surgical intervention in cases of organic pyloric obstruction. Balfour and Wharton[43] obtained relief of cardiospasm in two patients by the administration of 80 mgm. of procaine in solution one-half hour before meals. After the routine use of procaine in this manner for several days these patients found that they could discontinue medication for long periods, although excess worry or other emotional states usually required resumption of procaine for several days.

PROCAINE AMIDE

The outstanding success which often has accompanied the use of procaine, either orally or intravenously, in many disorders has prompted the search for other therapeutic agents of similar potentialities but devoid of some of the undesirable side-effects sometimes seen with procaine. Of these the most promising at the present time appears to be procaine amide (pronestyl). Sadove, Wyant, Kretchmer and Gittleson[44] investigated the therapeutic actions of this substance under various conditions. Concerning their observations they state (p. 56): "Advantages of procaine amide over procaine in anesthesia are prolonged action, making continuous administration unnecessary; possibility of oral administration; absence of stimulating effects on the central nervous system; and lower incidence of hypotension. Procaine amide does not appear to interfere significantly with liver and kidney function where these organs are functioning efficiently, and has no significant influence on blood count and sedimentation rate. It has good analgesic properties in control of pruritus and of pain in myositis and fibrositis, but is ineffective in severe pain of advanced malignant disease. Pyloric spasm is well controlled by the drug. Opposing disadvantages are that with our present state of knowledge, administration of procaine amide may not produce the desired effect, may cause results not anticipated, or may be entirely ineffective. In prophylaxis of cardiac arrhythmias determination of the protective dose is difficult and uncertain. We believe, however, that the drug is a useful additional agent for both anesthetist and internist, and that with further pharmacologic investigations and with greater clinical experience, procaine amide will eventually attain a definite place among the therapeutic agents for cardiac arrhythmias."

Similarly, Traut[45] found procaine amide effective as an analgesic in certain types of skeletal pain when given intravenously but not when administered orally. It is less likely to produce hypotension than procaine, and is less toxic in certain other respects as well. In those instances in which procaine amide is effective Traut favors its use instead of that of procaine because of its greater safety. Unfortunately, its field of usefulness appears considerably more restricted than that of procaine.

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MISSED DIAGNOSIS IN CORONARY ACCIDENT*

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Heart disease remains the greatest killer and crippler of our times in this country. Thirty-five per cent of all heart deaths are attributed to coronary disease, and, despite all of our improved methods of diagnosis and treatment, such as unipolar electrocardiography and the now widespread use of the anticoagulants, the death rate continues to rise steadily each year. The increasing toll in the earlier decades is especially distressing. Our medical records, for instance, in the South Pacific areas during the last war, reveal that many young men died during landing operations and, at autopsy, showed findings leading to the coining of a new medical phrase: "Beachhead Coronary". Paul White[1] has compiled statistics showing the increase in the number of coronary deaths in the earlier age groups, and holds that coronary disease is actually on the increase and is more widespread in age limits than ever before.

Many theories are evolved to explain this unfortunate situation: The effect of the artificial chemical fertilization of foods in changing us chemically and rendering us more liable to arteriosclerosis at an earlier age, the relative disappearance of breast feeding, the ingestion of fat and dilesterol, etc. Whatever may be the cause and whatever may be the ultimate solution, we are faced with the urgent problem of reducing the death rate in any way practicable.

We may attack this problem in several ways: (a) By increasing our efforts to educate the public in the signs and symptoms of coronary disease. (b) By increased impetus in research efforts. (c) By more care and concentration by physicians in the early diagnosis and proper care of coronary disease and accident.

The American Heart Association and its affiliates are doing a tremendous job at educating the public. Through literature given to school children to take home, through the establishment of local speakers' bureaus to furnish programs to service clubs, women's clubs, parent-teacher groups, fraternal groups, veterans organizations, etc., we are reaching many people. The public press has cheerfully joined the crusade, as has the motion picture industry, radio and television. My suggestion here is that if all of us as physicians would interest the public at a local and personal level, the problem could be more nearly solved. It is my sad confession to you, that, as a member of the Board of Directors of the Virginia Heart Association, I have gone into urban communities to help to organize local chapters and could not evoke the slightest interest among the local physicians, even among those few limiting their work to cardiology. This is not a healthy condition and must be corrected.

The American Heart Association is very active in supporting research in cardio-vascular problems in this country. This work must be continued and increased in so far as possible.

Finally, we, as physicians, must concentrate our every effort upon the correct and early diagnosis of coronary disease. Today we are placing too much dependence in the early and single electrocardiographic tracing. It is known that 30 to 40% of infarcts may be missed by the electrocardiograph, even with repeated and careful observations. Volumes have recently been written regarding this fact and warning as to the limitation of the test. Smith[2] points out that the value of the electrocardiograph as a diagnostic instrument must be viewed with caution and restraint. This is imperative when the electrocardiogram shows no deviation from normal in cases suspected of coronary heart disease. It is probable that 40 to 50% of cases of angina pectoris will have normal resting electrocardiographs. It is also probable that 10 to 20% of cases of coronary insufficiency will not give findings of diagnostic help with exercise tests. Electrocardiographic patterns simulating healed infarction may be due to causes other than coronary heart disease. The newer techniques have expanded the diagnostic value of electrocardiography, but they have also created new problems of evaluation. Altogether too many patients are needlessly invalided because of erroneous interpretation of tracings.

If time permitted it might be helpful to show specimens of electrocardiographic tracings shortly after a coronary accident where such tracings are well

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within normal limits and where the patient has died within hours or days afterward, with classical autopsy findings of occlusion and myocardical infarction, but I am sure that all of you are now too painfully familiar with such cases in your own experiences.

My late father was a general practitioner for many years, first in rural West Virginia and later in a small town. I well remember that, as a boy, when I was promoted to "chief engineer of horses (and stables)", I went with him on house visits, carried his bag into the house, and often got to see the patient. His only tools were his stethoscope, a crude blood pressure instrument and his five senses: but he carefully questioned and examined the patient at length and, if there was any doubt at all, he kept the patient in bed for several weeks and gave nitroglycerine, sedatives, morphine, aminophyllin and, sometimes, digitalis. Strangely enough, most of his cases recovered and returned to a fairly active life. In those days, coronary disease was referred to as "spasm of the heart", but the treatment and aftercare were about the same as at present.

A new method of studying the coronary arteries by a special type of injection devised by Schlesinger[3] has thrown considerable light on the diagnostic problem of coronary disease. It has been revealed that many occlusions occur that are not recognized in life and that are not accompanied by the clinical features of an acute attack. It has also been found that thromboses occur without infarction and that infarction can take place without thrombosis. Most hearts from patients with "angina pectoris" have shown two or more occlusions, even as many as ten in rare instances. We must always keep in mind that the electrocardiogram does not reveal *disease* of the coronary arteries, but *changes* in the myocardium.

In recent years the lay press has taken up the task of informing the public on many medical matters and, while, in general, this is a very helpful public service, it also provides a rather doubtful medical education, which is used by some neurotic people and even by medical malingerers to further the authenticity of their alleged symptoms. For this reason it might be well to describe an acute attack of coronary occlusion followed by myocardial infarction to bring out some salient points leading toward a correct clinical diagnosis.

The attack may begin during activity, or when the patient is resting or sleeping. Most frequently the *pain* begins behind the center of the sternum and between the two nipples, and as a rule does not begin with maximum intensity. It may radiate to the upper mid-back, the sides of the neck and to both shoulders and arms, especially the left. In the chest the pain takes on the character of a terrible squeezing or crushing sensation which produces in the patient the feeling of impending death. The pain is in waves of increasing intensity lasting ten or fifteen minutes and then followed by continuous pain until relief is given by narcotics. Many patients will walk about during this stage as if trying to "outrun" the pain. Others will sit on the side of the bed doubled up with the arms and head upon the knees and will not allow themselves to be approached or touched. *Vomiting* is a common early symptom. In the neurotic the vomiting is of the "convenient" type, often of the gagging type only and well controlled to punctuate or end a drastic tirade. In the true coronary vomiting is violent, almost projectile and entirely uncontrollable, often replacing a word being spoken at the time. It resembles the type of vomiting seen in meningitis, brain injury or the pyloric stenosis of infants. *Breathlessness* often occurs early and, in patients where the pain is not marked, may be the chief complaint. The patient may appear to be in *shock*. The skin is cold, clammy and has a peculiar ashen gray color. *Sweating* is characteristic. The patient is anxious and does not speak unless forced to answer a question and almost never screams as does the neurotic. He grunts or groans aloud but seems too far gone and out of breath to do more.

The *blood pressure* at first rises, then usually falls, in some cases, to 100 or less and may reach shock levels. Later slight *fever* and *leukocytosis* often occur.

The *heart sounds* are often muffled or distant and slightly accelerated; in many cases there is initial bradycardia. *Pericardial friction rub*, if properly interpreted, is of great diagnostic value. The *lung bases* usually show some fine rales, especially at the right base.

The *electrocardiograph* now may or may not confirm the diagnosis. I am convinced that once the physician has made a diagnosis in his own mind from the clinical picture alone, he should put the patient

under active treatment including anticoagulants, unless contraindicated.

So far, we have been discussing only one side of a diagnostic problem: that is the side of "under-diagnosis" or failing to make a diagnosis where coronary disease actually exists. Now let us briefly consider the other side—the side of "over-diagnosis", or making a diagnosis of coronary disease or accident where it does not exist. I am sure that Dr. Reno Porter will have something to say on this phase, as it has always been one of his "pet peeves".

Fully 50% of all the heart patients who come to us do not have heart disease at all. There are so many different organs represented in the epigastric area, that many cases are difficult to evaluate properly and correctly. Then, too, a great many physicians are over-cautious in these matters and will prefer to always leave an "escape door" by never coming out with a firm negative diagnosis in any coronary case. In one way, then, or another, many patients get the impression that they are coronary sufferers when they really are not. Once this conviction is allowed to become set in a patient's mind, it may never dislodge. I have seen many competent cardiologists and psychiatrists try vainly to undo the damage done to a patient's mind by one careless word from his own physician.

The term "coronary" to a middle aged man has the same ring of terror as the word "cancer" has to a woman, and once the seed has been sown, we may have a neurotic patient for the rest of his life during which he will no doubt suffer more than if he actually had coronary disease. It is far better not to mention the word "coronary" if it can be avoided, and also to explain that often the diagnosis of coronary disease cannot be made in a single examination. In summary, then, we realize that coronary deaths are on the increase. We must continue to educate the public, especially at the school child level; to increase our research efforts, looking toward a real explanation and a real approach to the nature and prevention of arteriosclerosis, and, finally, greater care in the diagnosis of the patient himself, rather than a too ready acceptance of the reports of his electrocardiograph and laboratory findings.

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Doctors' Building.

Doctors Help Support Medical Schools.

Nearly 37,000 physicians contributed more than $3,150,000 in direct support of medical education last year. This total, however, does not inc ude amounts given for buildings, endowments, scholarships, research and other special purposes. Dr. Donald G. Anderson, secretary of the AMA's Council on Medical Education and Hospitals, announced that reports from 76 of the country's 79 medical schools indicate that more than 29,000 doctors gave $2,258,534 directly for teaching budgets.

The American Medical Education Foundation raised $906,553 of the total from more than 7,000 individual contributors. The AMEF's 1953 fund-rais ng drive has been launched with a third gift of $500 000 from the AMA. Since its organization two years ago, the Foundation has raised more than two million dollars from the medical profession for distribution "without strings attached" to medical schools.

XUM

HIATUS HERNIA AS AN OBSCURE CAUSE OF ANEMIA*

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and
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A coincidence which has occurred frequently enough in our practice to warrant reporting is the combination of anemia and esophageal hiatus hernia. It has been of especial interest to us that the symptoms of anemia are actually what brings some of these patients to the office. Therefore, we are presenting eight cases we have seen, together with their x-rays.

CASE I. Mrs. J. F., a 73 year old moderately obese white female came in for examination prior to pelvic repair surgery. Systems review revealed that she had been having some dizziness and exertional dyspnea. She also stated that she had had

Case 1

some tightness in her abdomen for years, noted more after eating. Physical examination was normal aside from the presence of a very large cystocele. Hemoglobin was 59%, and red blood count 2.8 million; urine was negative. Gastric analysis revealed the presence of free acid. An upper gastro-intestinal series showed an esophageal hiatus hernia of the short esophagus type. Chest and colon films were negative. She was placed on a diet, iron by mouth, and an antispasmodic. Six weeks later, her hemoglobin was 88%, and when last seen one year later was 100%.

CASE II. Mr. J. W. C. This 75 year old moderately obese white male was seen at the University of Virginia in 1938 because of "sour stomach" and tarry stools. X-ray there revealed a constriction of the lower esophagus, and esophagoscopy showed a stricture at the hiatus with several areas of ulcera-

Case 2

tion and marked vascularity. He recovered with symptomatic therapy and was well until seen in our office in April of 1949 because of a spontaneous pneumothorax. Hemoglobin at that time was 88%. One month later he rather suddenly became weak, began passing tarry stools, and appeared to be in shock. Hemoglobin was 65%. He was hospitalized, transfused, and recovered without incident. Gastro-

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intestinal x-ray showed a hiatus hernia. He was placed on the usual therapy regime, and when last seen in 1951 had a hemoglobin of 96%, with neither symptoms nor recurrence of hemorrhage. NOTE: This man's son, age 49, has a large hiatus hernia which produces postprandial, epigastric, and chest pain; but, as yet, had no acute or occult bleeding.

CASE III. Mrs. J. W. DuP., a 62 year old obese white female, presented herself complaining of weakness, fatigue, and exertional dyspnea. She had been receiving liver injections for five months because of

Case 3

anemia but seemed no better. She furthermore stated that she had had considerable heartburn and belching after meals for five to ten years and occasional attacks of severe nocturnal epigastric pain relieved by hypodermics. Stools were at times black. Her hemoglobin was found to be 53% and a sternal marrow examination was consistent with anemia due to chronic blood loss. Upper gastro-intestinal series revealed a large hiatus hernia. She was hospitalized, transfused, and is now maintained on the usual therapy. Four and one-half months later, her hemoglobin is 86% and she has only very occasional mild epigastric discomfort.

Case 4

CASE IV. Mrs. C. G. C., a 64 year old obese white female, presented herself in 1942 complaining of heartburn after meals associated with dyspnea which was relieved in a few minutes by sitting up straight. Her hemoglobin was 85% and red blood count 4.82 million. Electrocardiogram and gastro-intestinal x-rays were negative. She was seen again in 1951 with the same complaints and a hemoglobin of 49%. Repeat x-ray revealed a large non-reducing esophageal hiatus hernia. She was hospitalized, transfused and discharged on the usual therapy. Hemoglobin is now 88%.

CASE V. Mrs. L. B. W. This 66 year old white moderately obese female began having episodes about eight years ago of choking sensations and inability to swallow coming on while eating. Attacks were relieved spontaneously in ten to thirty minutes. Two or three years ago she was x-rayed and a hiatus hernia of the para-esophageal type found. She came under our care for the treatment of rheumatoid arthritis which developed in the meantime and was doing very well with a hemoglobin static at about 85%,

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Case 5

when she was awakened one night by an episode of choking, chest discomfort, and the welling up of moderately large amounts of bright red blood. Hemorrhage ceased spontaneously and the hemoglobin was found to have dropped to about 70%. Since then she has been maintained on routine therapy, and has had two smaller episodes of gross hemorrhage with no appreciable drop in hemoglobin.

CASE VI. Mrs. G. F. This 78 year old moderately obese white female was seen at home because of sub-sternal pain coming on after her evening meal. Electrocardiogram was normal and she was being observed for developments when she had to be hospitalized because of a coincident incarceration of an inguinal hernia. Soon after admission this reduced spontaneously, but anemia (hemoglobin 72% and red blood count 3.9 million) was noted and substernal discomfort persisted. Consequently, an upper gastro-intestinal series was done and a hiatus hernia revealed. This responded to symptomatic treatment and she has done well, is free of symptoms and her hemoglobin remains at around 86%.

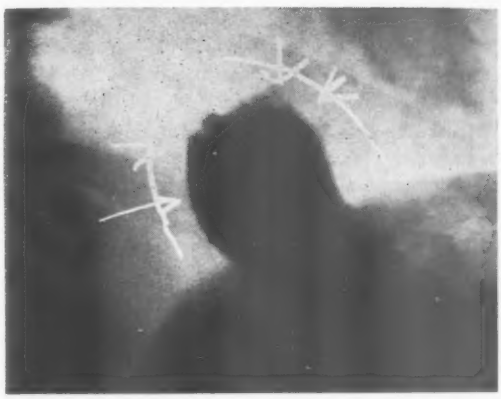
CASE VII. E. B. This 36 year old colored female had been having episodes for about five years, lasting twelve to twenty-four hours, and consisting of upper abdominal pain, nausea, and vomiting of questionable coffee ground material. These attacks always subsided spontaneously in a few hours and required little or no medical care. We saw her recently for a similar type of attack and there was no question but what the vomitus contained old blood. Her

Case 6

hemoglobin was 85%, and an upper gastro-intestinal series revealed a small hiatus hernia. She is doing well on therapy. It is interesting to note that this patient is neither old nor obese.

Case 7

CASE VIII. Mr. T. T. A., white male, age 59, was admitted to the Lynchburg General Hospital on June 17, 1952, with anemia and with chills and fever. Hemoglobin was 42% and red blood count



Case 8

2.23 million. The chills and fever were found due to a urinary tract infection. However, a large hiatus hernia was discovered on x-ray which accounts for his anemia.

DISCUSSION

That esophageal hiatus hernia can be a cause for anemia is without question. Ritchey and Winsauer[1], reporting on a survey of the literature up to 1947 plus their own cases at the Indiana University Medical Center, noted 102 cases specifically presented because of this combination. Numerous others occur, of course, and are not reported because of small series, intellectual inertia, etc. The type of anemia varies according to the acuteness of the onset. Where acute hemorrhage with melena and/or hematemesis has occurred, it is of the normochromic normocytic type. In the cases where anemia itself is the presenting sign-symptom complex and its development has been gradual and obscure, it is usually of the hypochromic microcytic type, falling into the so-called group of secondary anemias.

The degree of anemia may be quite variable, depending in part on the acuteness of the blood loss, but also on the compensatory powers of the patient. Some cases have presented themselves with hemoglobin levels as low as 30 to 40% of normal which have insidiously developed. There seems to be no constancy of the relationship between the presence of anemia and the characteristic symptoms that hiatus hernia *may* produce. Many cases first present with no prodrome to an acute upper gastro-intestinal hemorrhage or no indigestional complaints concomitant with the development of the classic picture of anemia.

As to the exact etiology of the anemia, variable theories have been advanced. All are agreed that gross ulceration, either of the lower esophagus or herniated portion of the stomach accounts for some cases, especially those with acute hemorrhage.[1,2,3,4,5,6,7] The British[8] and French generally tend to support the theory that there may be a question of deficient iron absorption. In this country, however, most observers are agreed with the observation of Sahler and Hampton[7] who, on a basis of gastroscopic and postmortem examinations in several patients with hiatus hernia and associated anemia, postulated that the anemia in these non-acute cases is due to the constriction of the herniated stomach by the diaphragm with resultant venous engorgement, edema, submucosal hemorrhage, and shallow ulcerations. The fact remains, however, that in many cases no precise etiologic mechanism can be demonstrated.

HIATUS HERNIA

Anatomically, there are three types of esophageal hiatus hernia. The most common, comprising roughly 70% of all cases, is the true hiatal hernia in which both the lower esophagus and the cardiac stomach form a sliding type of hernia, protruding into the thorax with their covering of peritoneum. Second in frequency, accounting for about 10% of cases, is the short esophagus type where the upper stomach is constantly fixed in the thoracic cavity. The third type is the para-esophageal hernia where the lower esophagus stays fixed in position and a portion of the stomach herniates into the posterior mediastinum through the hiatal ring.

The exact etiology in most cases is not known. The short esophagus type is congenital and some are secondary to trauma. However, in the great majority of cases, most authorities have agreed on nothing less vague than that there is a loss of tissue elasticity with age. We do know, though, that such factors as protracted vomiting, chronic cough, and obesity—all of which cause an increase in intra-abdominal pressure—seem to be predisposing factors to the development of these herniae.

As for the incidence of this condition, various observers[2,7], have placed it at anywhere from 2.4 to 9% in routine gastro-intestinal x-rays. They are rare, with the exception of the short esophagus and traumatic types, before 40 years of age. Schatzke[11] noted that he could demonstrate the presence of hiatal

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hernia in 70% of patients over 60 years of age, provided he employed greater than normal abdominal pressure during the roentgen examination. These defects are found twice as often in females as in males.

The symptoms, as stated before, vary in their presence and severity. Strangely enough, there seems to be no correlation between the size of the hernia and the degree of symptoms. Presenting complaints may be those due to anemia alone at times. More commonly, though, there are indigestional complaints, the most typical of which is the sudden onset of postprandial epigastric distress with radiation to the back or precordial area and associated with dyspnea. This most often is noted after a heavy meal and especially when lying down. In such cases, simply standing up will often terminate the attack. Other symptoms frequently seen include dysphagia, nausea and vomiting, regurgitation, and palpitation. As noted, attacks frequently come on at night because of the reclining position. Bending, coughing, vomiting, and sneezing may also precipitate attacks.

The diagnosis of hiatal hernia is definitely established by x-ray. They are not always easy to find and, indeed, ofttimes are not found on the first x-ray examination. Hazel & Jensik[9] state that the most consistent position in which to demonstrate their presence is with the patient prone and lying on the right side. Sometimes, simply tilting the patient into Trendelenburg position will betray the defect. If the herniation is small, extra-abdominal pressure will probably be necessary to reveal it. And sometimes the diagnosis can be made, when all other methods have failed, by having the patient assume the position in which attacks are prone to occur.

Complications, in addition to anemia and/or acute hemorrhage which occur in roughly 25% of cases, include occasional paroxysmal auricular tachycardia or fibrillation and also true reflex anginal pain[2] which may be difficult to recognize because of the similarity between it and the pain produced by the hernia.

One other "complication" that should be borne in mind is that patients with the short esophagus type of hernia are especially prone to develop carcinoma of the cardiac stomach. In the event of any unexpected variation of their course, these patients should be re-x-rayed and gastroscoped rather than assuming the hernia is the cause of all the trouble.

Generally, the preferred method of treatment is medical. At times, it is necessary to repair the larger ones surgically but the results are not uniformly good enough, because of the recurrence and inoperability rates, to recommend this type of therapy in the average case[10]. Most can be controlled by a combination of diet, medication, and sensible awareness.

The last named is probably most important of all. Patients are advised against having their big meal at night and are reminded to chew their food thoroughly and to eat slowly. They should never lie down sooner than three hours after eating and at times may find that sleeping in a semi-recumbent position is necessary to prevent herniation.

The diet should be bland and of the convalescent ulcer, low-residue type. This at times poses a problem because it is a generally high caloric type of diet and it is imperative that those patients who have a combination of hiatal hernia and obesity be reduced. In such cases, they should be allowed smaller quantities of food rather than other types. Some antispasmodic before meals and an anti-acid after meals is advisable.

The anemia typically responds dramatically to therapy with iron given orally. We have found that the hemoglobin level rises rapidly to normal, a matter of a few weeks, and maintains that level as long as dosage is continued. Acute hemorrhage sometimes requires transfusion.

SUMMARY

Attention is called to the fact that one cause of obscure anemia may be esophageal hiatus hernia. Eight cases are presented to demonstrate that the anemia may be due to acute hemorrhage or secondary in type and that gastro-intestinal symptoms may or may not be present with this condition. The pathology, etiology, incidence, symptoms, diagnosis, complications and treatment of these herniae are discussed and it is emphasized that the majority of cases can be managed by a simple medical regime, dependent for its success upon the awareness and fullest cooperation of the patient.

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Treatment of Thyroid Disease Aided By Use Of Hormone Drug.

Continuous research with cortisone, one of the hormone drugs, has shown it to be useful in the treatment of subacute nonsuppurative thyroiditis, according to an article in the February 14 J.A.M.A. Subacute nonsuppurative thyroiditis, a relatively rare condition, is an inflammatory disease of the thyroid that results in an enlarged, firm, tender gland.

Three cases in which the preparation was used successfully to treat the disease were reported by Drs. Dwight E. Clark, Thomas S. Nelsen and Robert J. Raiman, Chicago. All are associated with the department of surgery of the University of Chicago.

"A single daily dose of 25 milligrams was given [to each patient] for a total of 12 to 14 days," they stated. "Marked relief of both local and systemic symptoms was apparent within 24 hours. The pain and tenderness had completely disappeared in from four to seven days. Within the first week of therapy, the glands had decreased in size and become softer.

In all cases, the thyroid gland had returned to normal size and consistency within two months. There have been no recurrences.

"Cortisone, which is presented as another mode of therapy, has the advantages of prompt and dramatic relief of symptoms, ease of administration, and, in the dosage levels and duration of treatment found necessary, the absence of any side-reactions. In view of these facts, we feel justified in recommending the use of cortisone as an agent useful in the treatment of subacute nonsuppurative thyroiditis."

Previous treatment of the condition, by drugs, and/or x-ray, generally gave good results, the doctors stated. However, these forms of therapy have such disadvantages as inconvenience of treatment, longer periods of treatment before relief was obtained, a high recurrence rate, and toxic side-effects in some instances.

It was pointed out that the cause of the disease has not been proven. Most of those persons afflicted with it complain of bodily discomfort, weakness and neck pain; many have low grade fever.

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RECENT TRENDS IN THE TREATMENT OF PULMONARY TUBERCULOSIS*

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and
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INTRODUCTION

In recent years decided changes have been evident in the therapy of pulmonary tuberculosis. A survey of the older accepted forms of treatment shows that the end-results have often been far from ideal. Complications, frequently introduced by the method of treatment, have added to the gravity of the situation and have been too often encountered. The incidence of relapse even in cases apparently controlled has been considerable. Prolonged treatment and marked physical limitation of the patient have created a definite economic problem.

The purpose of this paper is to present the collapse therapy with surgical and other procedures employed on patients discharged from Blue Ridge Sanatorium from July, 1939, through June, 1952, as shown in Table I. It is particularly our purpose to point out the reasons for the recent trends observed as we believe them to be as a result of our own experience and the reasons as they are expressed by others in the medical literature. This is not intended to express the opinion of all workers, as there continues to be considerable variation in the choice of collapse and surgical procedures by different individuals, but in general it does represent the trend of treatment.

It is evident from Table I that a definite decrease in artificial pneumothorax and the phrenic nerve operation has taken place in recent years and that the use of artificial pneumoperitoneum has gained in popularity. Primary thoracoplasty still enjoys a rather prominent place among permanent collapse measures, but the greatest change is noted in pulmonary resection for tuberculosis. The bronchoscope has been used much more often and bronchoscopic findings are recognized as being indispensable in the selection of therapy and in the complete evaluation of a case.

Streptomycin and para-aminosalicylic acid have passed through the experimental phase and can now be administered intelligently and in a way to obtain maximum results.

TABLE I
COLLAPSE THERAPY WITH SURGICAL AND OTHER PROCEDURES
BLUE RIDGE SANATORIUM

	July '39 June '40	July '48 June '49	July '49 June '50	July '50 June '51	July '51 June '52
No. of Patients Discharged	363	394	362	450	419
Pneumothorax	99	71	49	19	7
Pneumoperitoneum	0	29	65	69	45
Total No. Thoracoplasties	25	89	79	86	84
Total No. Thoracoplasty Operations	57	186	163	164	157
Resections (Total)	0	5	1	19	92
Local (Wedge and Segmental)	0	0	0	2	39
Lobectomy	0	1	0	5	30
Pneumonectomy	0	4	1	12	23
Phrenic Interruptions	34	31	13	6	5
Bronchoscopies	7	99	118	88	179

ARTIFICIAL PNEUMOTHORAX

Artificial pneumothorax, a procedure which not too long ago was so widely used, has been decidedly on the wane in recent years. Mitchell[1] has found an 18.2% incidence of tuberculous empyema in his series of cases ten to twenty years after the induction of pneumothorax but has observed an incidence of tuberculous empyema of only 8.2% where an ex-

*Read before the annual meeting of The Medical Society of Virginia, in Richmond, September 28—October 1, 1952.

cellent collapse was maintained. Oglee and Jones,[2] in reviewing 100 re-expanded cases of artificial pneumothorax, point out that either during the course of treatment or the period of re-expansion 74% developed clear fluid but only 8% cloudy fluid in which tubercle bacilli could be demonstrated on direct smear.

Cutler,[3] reporting on 476 cases of artificial pneumothorax, noted an incidence of 7.7% empyema in 346 cases with a mechanically effective pneumothorax, while 27% empyema occurred in 130 cases with a mechanically ineffective collapse. In 1,389 pneumothoraces Salkin and Cadden[4] found an incidence of 16% tuberculous empyema, this 16% including only a collection of frank pus, all serofibrinous fluid being excluded. An incidence of empyema of 24% was noted by Morrison,[5] who further states that 90% of the empyemata in his series developed in patients who previously had a serous effusion. In 1939 Chapman and Stafford[6] found 15% incidence of empyema as compared to 1% in 1949.

In studying the reactivation of disease after abandonment of pneumothorax on 249 patients whose response to pneumothorax had been entirely satisfactory through collapse and after abandonment, Mitchell[8] reports an incidence of 21.7% reactivation after eighteen years, but 13.6% of these reactivations occurred within three years. Potter[9] states in 126 cases voluntarily re-expanded a relapse occurred in 6, or 4.7%. Involuntary reexpansion in 26 cases showed a relapse in 5, or 19.2%.

Of 312 cases studied by Mitchell[7] only 17% had no discernible contraction of the lung following re-expansion, while 40% showed evidence of residual fluid in significant amounts.

Pinner *et al.*[10] have demonstrated that severe pleural involvement causes not infrequently more profound functional damage to a lung than do advanced parenchymal lesions. According to these investigations, functional impairment of the lung itself from tuberculosis is variable following re-expansion of the lung.

In reviewing 128 cases of unilateral artificial pneumothorax two years after re-expansion, Allen and Kelly[11] report 72, or 56.3%, satisfactory or cured with 22, or 17%, definitely improved. Nine, or 7%, died. Aycock and Keller[12] show satisfactory results in 301, or 57%, of 530 individuals receiving artificial pneumothorax.

Table I shows a progressive decline in the cases of artificial pneumothorax discharged from Blue Ridge Sanatorium from July, 1939, through June, 1952. Of 363 discharges from July, 1939, through June, 1940, there were 99 cases who were receiving artificial pneumothorax as compared to a total of 7 cases in 419 discharges from July, 1951, through June, 1952.

Some of the factors involved in bringing about this decrease in pneumothorax are:

1. The fairly high incidence of pleural effusions and empyemata.

2. The unexpandable lung resulting from atelectasis, pleural changes, pleural fluid, pulmonary fibrosis, or a combination of these factors.

3. The subsequent flare-up of disease following re-expansion.

4. Functional impairment of the lung, which may be variable but is more evident where severe pleural changes are present.

The long-time follow-up of cases receiving artificial pneumothorax would indicate that often the poor selection of cases, the maintaining of unsatisfactory anatomical collapses, and the failure to recognize certain danger signals, such as persistent fluid formation, have all been factors in bringing about the discouraging statistical results which are at times encountered. The result today is that pneumothorax has become unpopular, though the pendulum will probably swing back somewhat but never to the point where it was at one time, and the indications will always be greatly limited. As important as any factor in moving us away from pneumothorax has been the recent demonstrable safety of excisional therapy.

CASE REPORT

Case R.A.: The patient was a sixteen year old white female admitted to Blue Ridge Sanatorium on September 30, 1943. On admission the x-ray revealed a predominantly exudative infiltration in the right upper lobe laterally between the 2d and 3d ribs. Examination of the sputum on culture was positive for acid fast bacilli. Diagnosis: Pulmonary tuberculosis, right lung, minimal, active.

Treatment initially was conservative with bed rest only and improvement was noted until June, 1944, when there was an exacerbation of the disease and

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the sputum examinations became positive by the concentration method. Right artificial pneumcthorax was instituted on July 18, 1944, and following this changes were noted suggesting possibly some degree of atelectasis of the right upper lobe. Good therapeutic results were obtained from the collapse, though it was not an ideal anatomical one because of a small adhesion into the apex which was not suitable for a pneumonolysis. Repeated examinations of the sputum by the concentration method were negative and the patient was discharged on April 7, 1945.

Right artificial pneumothorax was continued and in 1947 an attempt was made to re-expand this lung but this was only partially successful. Finally, in 1951, the procedure was abandoned and the remaining pleural space filled with fluid. Laminagrams in September 1951 showed no evidence of cavitation but pronounced pleural thickening was evident. The patient was given streptomycin, grams 1.0 with para-aminosalicylic acid 12 grams daily, for a period of 30 days and on November 21, 1951, had a decortication on the right side with a right upper lobectomy, as the upper lobe was found completely atelectatic. The post-operative course was uneventful.

Discussion: This case illustrates the approach to minimal as well as more advanced lesions approximately seven to ten years ago. Two danger signals were presented in the management of this case, which were the progressive atelectasis of the upper lobe, indicating possible bronchial disease, and a persistent adhesion. Therapeutic results were considered more than possible complications.

Our approach to this case today would be a prolonged course of streptomycin, grams 1.0 every third day with para-aminosalicylic acid 12 grams daily, until the reversible disease had responded. After this had been accomplished a preliminary bronchoscopy would have been done, and, if not contraindicated, some form of pulmonary resection, possibly a wedge or segmental, would be performed. Post-operatively the streptomycin and para-aminosalicylic acid would be continued for a period of four to six months.

This case also illustrates one of the serious pleural complications of a long-standing pneumothorax, which required in itself a major surgical procedure even though the parenchymal lesion was a small one.

PHRENIC NERVE OPERATION

Phrenic nerve operation is a procedure which in the past has enjoyed some popularity and has been employed alone as a therapeutic measure and more recently in conjunction with artificial pneumoperitoneum.

Seiler and Murphy,[13] in considering the permanence of the so-called temporary phrenic nerve interruption, have studied 157 cases who received this operation more than one year previously, and their results showed 18.5% with complete paralysis of the diaphragm and 53.5% with partial or complete paralysis. Trimble *et al*[14] have found that permanent interference with the function of the diaphragm is frequently an aftermath of the so-called temporary nerve blocks and that the procedure is not entirely innocuous. They observed even years after temporary operations had been performed that the muscles of the diaphragm continued to show damage. Pinner *et al.*[10] point out that phrenic paralysis with thoracoplasty produces marked functional impairment of the lung.

As will be noted from Table I, since July, 1939, there has been a profound decrease in the number of phrenic nerve operations done on patients discharged from Blue Ridge Sanatorium. From July, 1939, through June, 1940, of 363 discharges 34 patients had phrenic interruptions, whereas, from July, 1951, through June, 1952, only 5 patients in 419 discharges had this operation.

To summarize, the factors playing a part in the decline in the use of phrenic nerve interruption are as follows:

1. The high percentage of persistent permanent or partial paralysis of the diaphragm with the so-called temporary operation. This is most undesirable, particularly if a thoracoplasty is indicated. In the event of development of contralateral disease the indicated therapy may be interfered with.

2. Where complete or partial paralysis persists, bronchial drainage is definitely impaired.

Although there may be rare indications for phrenic nerve crush in conjunction with pneumoperitoneum, we are impressed with its hazards, as stated in the foregoing paragraph; and, moreover, we believe that lower lobe disease, which is the most frequent indication for pneumoperitoneum with added phrenic crush, is usually better treated by resection.

PNEUMOPERITONEUM

In recent years artificial pneumoperitoneum has

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gained in popularity. Crenshaw and Gross[15] state that pneumoperitoneum is not a competitive treatment to artificial pneumothorax but the indications for pneumothorax have narrowed so much that pneumoperitoneum is the principal temporary collapse procedure. They do not consider this particularly suitable for minimal cases nor those with predominantly fibrotic lesions. Of 560 cases reported, 246 were considered successfully treated by this procedure alone.

Crow and Whelchel[16] point out the low incidence of complications with artificial pneumoperitoneum. In 546 patients, serious complications were encountered in only 5 (0.9%). Elliott and Blair[17] have found in over 10,000 pneumoperitoneum refills no cases have been discontinued because of complications directly attributable to the procedure.

Mitchell *et al.*,[18] in reviewing the results in 710 cases of pneumoperitoneum show satisfactory results in 57% of the white and 37% of the colored patients with advanced pulmonary tuberculosis not amenable to other accepted forms of collapse therapy. Stein,[19] in an extensive review of the literature, has concluded from his study that 5.6% of the individuals taking pneumoperitoneum will develop complications sufficiently serious to make continuation of therapy impossible.

Table I shows an increase since 1949 in the number of patients discharged from Blue Ridge Sanatorium receiving artificial pneumoperitoneum, though the peak was reached from July, 1950, through June, 1951, when 69 patients out of 450 discharges were receiving this procedure. The decline from July, 1951, through June, 1952, can be accounted for because pneumoperitoneum was discontinued in a number of cases and other more permanent procedures instituted. The increased popularity of pneumoperitoneum is due to the following:

1. It is a reversible procedure.
2. The incidence of serious complications is low.
3. The procedure has definite therapeutic value, particularly in extensive bilateral disease unsuited for other types of collapse therapy.
4. It can be used as a temporary measure in preparing patients for more definitive surgical procedures.

In our experience pneumoperitoneum is frequently not sufficient in itself to properly treat the average case of tuberculosis. It is most effective in light disseminated lesions in the mid and lower lung fields. Cavities rarely close as a result of pneumoperitoneum. Residual cavitary lesions are better treated by resection or thoracoplasty when possible.

CASE REPORT

Case T. D. P.: The patient was a thirty-four year old white male who was admitted to Blue Ridge Sanatorium on October 20, 1950. On admission the x-ray revealed fibro-exudative disease throughout the right lung with cavitation above the anterior 3d rib. There was also a predominantly exudative infiltration fanning out from the root zone in the left lung. Sputum examinations were positive for tubercle bacilli by the direct method.

Artificial pneumoperitoneum was instituted on November 20, 1950, and this was continued until May, 1951. Streptomycin, grams 1.0 daily, was given from October 27 to November 26, 1950. Good clinical and x-ray improvement was obtained and in May and June, 1951, a two-stage (7 rib) thoracoplasty was performed on the right side. His course following operation was uneventful and he was discharged on September 28, 1951. Sputum examinations prior to discharge were repeatedly negative for acid fast bacilli by the concentration method.

The patient was last seen in April, 1952, when he was continuing to progress satisfactorily both symptomatically and from an x-ray standpoint. Sputum examinations at that time by the concentration method were negative for acid fast bacilli.

Discussion: This case illustrates the use of artificial pneumoperitoneum in preparation for some other procedure. With pneumoperitoneum the disease in the left lung improved to the point where the right upper thoracoplasty could be performed. Therapy in this case was satisfactory, though today this individual would have received a prolonged course of streptomycin, grams 1.0 every third day with para-aminosalicylic acid 12 grams daily divided into three doses.

THORACOPLASTY

Thoracoplasty has been and still is recognized as a most satisfactory type of permanent collapse in properly selected cases. Guthiel *et al.*[20] report on 254 thoracoplasty cases two to ten years after the operation and state 193 of these had their disease controlled by this procedure; 163 (64.1%) were well

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and working. A late reactivation of disease took place in 5 patients (1.9%). The type of disease collapsed did not alter the result, though the poorest results were obtained with the so-called destroyed lung.

Hagn-Meincke,[21] in reporting on 420 thoracoplasty cases, found when the operative material was selected from a group of good "chronics" a recovery of more than 60% is obtained as against 20% to 25% by conservative treatment. His operative mortality was 3%. Douglass,[22] in reviewing the late results of thoracoplasty in 102 cases operated on for parenchymal disease after a five-year follow-up, states 69, or 68.6%, obtained good results. Dieffenbach and Crecca,[23] in analyzing 100 consecutive cases of thoracoplasty, found no operative mortality. 71% became arrested and all of these patients were working or able to work. Thirteen patients died from progression of their disease.

In studying the end-results of thoracoplasty with a control group, Freedlander and Wolpaw[24] report on 85 thoracoplasties and 58 patients who refused operation. The course of most of the control group was unfavorable, 35% becoming worse within one to four years and 26% died. 10% of the group became closed as compared to 57% with thoracoplasty. O'Brien *et al.*,[25] in reporting on 511 patients with thoracoplasty, found, of the 296 patients at home, 224 were working or able to work. Cavity closure with conversion of the sputum after one year was accomplished in 81.65% of the patients. In a study of 56 consecutive cases, Goldman, *et al.*[26] show 39, or 70%, arrested with 4, or 7% dead. Dolley *et al.*[27] evaluated the results from fourteen American clinics in 1,636 cases and concluded that the prognosis of the far advanced case of tuberculosis is much improved with thoracoplasty.

As will be noted in Table I, only 25 thoracoplasties were performed on the 363 patients discharged from Blue Ridge Sanatorium from July, 1939, through June, 1940. Since 1948, however, the number of patients operated on each year has remained fairly constant. At one time this operation was used most often as a last resort when other procedures had failed, and this resulted in many bad risks. As the indications for this procedure have broadened, the results have been much better and the future of the patient has become more secure.

Thoracoplasty is particularly suitable in diffuse upper lobe lesions, peripherally situated for the most part. Cavities, if present, should be small and preferably 2 cm. or less in diameter. More extensive disease is probably better treated by lobectomy. We favor either segmental or wedge resection, when possible, for the more localized lesion in preference to thoracoplasty.

PULMONARY RESECTION

On the basis of the present available data, the evaluation of resection in the treatment of pulmonary tuberculosis is impossible. The earlier operations done were without the use of streptomycin and para-aminosalicylic acid, and it has now become an established fact that adequate pre-operative and post-operative treatment with these drugs is extremely important in obtaining more satisfactory results.

Sive *et al.*,[28] reporting on 84 resections for pulmonary tuberculosis, note that 54 patients had satisfactory results, while 21 had unsatisfactory results and 9 died. The immediate surgical mortality was 2.4%. In a follow-up of the 75 survivals one to four years later, 60 had negative sputums. The poorest results were obtained in the Negro race, in those with large tension cavities, and those resistant to streptomycin.

In considering resections *versus* thoracoplasty in the treatment of pulmonary tuberculosis, Beatty *et al.*[29] had a very high mortality (20.4%) in 93 resections. However, of the 74 patients who survived, a sputum conversion was obtained in 91.9%. These authors explain the high mortality on the basis that most patients coming to operation were poor operative risks and that the resections were done as a last resort. Also, streptomycin was not available for all patients. In an analysis of 426 patients subjected to 437 pulmonary resections, Overholt *et al.*[30] demonstrate a reduction in total post-operative complications where streptomycin was used. Of 336 living patients, 302 (89%) were well with negative sputum. Forsee *et al.*[31] report 2 deaths among 94 patients on whom lobectomy had been performed for pulmonary tuberculosis and an early and late mortality of 4% on 124 patients with various types of resections. Day *et al.*,[32] however, found a fairly high incidence of complications in a series of 202 patients consisting of 98 lobectomies and 104 pneumonectomies. Of this group 13% had broncho-pleural fistulae with empyema while 14% of the lobectomies and 10.5%

of the pneumonectomies had post-operative spreads. An early and late mortality rate of 12.4% was noted.

Sweet,[33] likewise, had rather discouraging results, reporting on a two-year follow-up of 54 patients surviving lobectomy and pneumonectomy. Of this group only 19 remained well, 19 patients dying as a result of progression of disease. The best results were obtained with the pneumonectomies. Moore *et al.*,[34] in reviewing the American literature on pulmonary resections up to 1948, reported rather discouraging results. Murphy and Becker,[35] in studying a group of 100 patients who had resections for tuberculosis and were observed for a three to six year period, report results superior to thoracoplasty. Eighty patients were discharged and capable of carrying on some form of occupation. Eighty-five, or 93.4% of the living patients, had negative sputums. Overholt *et al.*,[36] on the basis of their results feel that primary resection, especially when used early in the course of the disease, is a very effective form of treatment.

Medlar[37] has contributed much towards the justification for removal of the less extensive tuberculous lesions. He states that the smallest detectable lesion in tuberculosis has the same pathologic components present as the disease of larger volume and extent. He further points out that the most dangerous part of the pathology of tuberculosis is the necrotic pneumonic lesion which tends towards sloughing into the connecting bronchus and which causes tuberculosis to be an unpredictable disease with considerable tendency to relapse. Unsatisfactory results in therapy often relate to a failure to eradicate the sluggish, persistent, necrotic pneumonic tuberculous lesion.

In 5 patients with minimal disease, each having been on bed rest for one year plus four months or more of combined streptomycin and P.A.S., Medlar[37] reports that necrotic pneumonic lesions were present in every specimen resected. In other specimens resected and studied, cavity formation that had become lost to view proved to be filled-in cavities, often with a demonstrable patent bronchial communication. Stable roentgenographic shadows of several years' duration were found to represent usually a mixture of scar formation, of unhealed necrotic pneumonic lesions and, in some instances, lobules of non-necrotic pneumonia composed in a large part of epithelioid tubercles and giant cells.

In a study of long-term results of spontaneous closure of tuberculous cavities, Meade[38] reports that cavities which close on bed rest alone are, on the average, 2 cm. or less in size. If closure is to be accomplished, it usually takes place in three to four months and about 30% show evidence of re-opening.

Table I shows there were no resections in 363 patients discharged from Blue Ridge Sanatorium from July, 1939, through June, 1940. Only a very few cases, a total of 6, were among the 756 patients discharged from July, 1948, through June, 1950. Nineteen patients with resections in 450 discharges, however, left during the year beginning July, 1950; whereas, of 419 discharges from July, 1951, through June, 1952, 92 patients had resections for pulmonary tuberculosis.

In a recent analysis of 106 consecutive pulmonary resections for tuberculosis done on patients discharged from Blue Ridge Sanatorium between July, 1950, and June, 1952, 70% of the individuals were discharged as having arrested disease. The tuberculous fatality rate from progressive disease on the 106 cases following operation was 2.8%, with a non-tuberculous fatality rate of 0.9%, making a total of 3.7% from all causes. It is interesting to note that in these 106 patients, tuberculous complications were encountered three times more often where streptomycin was not used.

These 106 cases include the following:

1. Wedge Resections	25
2. Segmental Resections	16
3. Lobectomies	36
4. Pneumonectomies	29

Pulmonary resection in tuberculosis does not, even in slight lesions, necessarily imply the eradication of all disease, but it does represent the removal of the focus which is most likely to cause future difficulty and which would be an important factor in producing a relapse. The approach to satisfactory therapy in any case of pulmonary tuberculosis depends on the proper immediate treatment, and the selection of therapy used should not only insure adequate initial treatment but the measure selected should contribute most towards the future security of the patient. The more recent immediate results in pulmonary resection for tuberculosis are most encouraging, but time will be a definite factor in finally evaluating this approach to the treatment of this disease.

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BRONCHOSCOPY

Not too long ago bronchoscopy was used only prior to major surgical procedures and when the patient complained of symptoms or there was evidence of atelectasis on the x-ray or physical signs of bronchial disease were definite.

Today bronchoscopy is frequently employed; indeed, some have advocated routine bronchoscopy in established tuberculosis. It has been surprising, to say the least, to find bronchial disease, sometimes extensive, associated with slight parenchymal lesions with the total absence of symptoms and signs or x-ray findings suggesting bronchial disease.

We have been impressed with the great safety of bronchoscopy in active tuberculosis. We have not observed a single instance of definite spread or exacerbation of disease following a bronchscopy.

Bronchoscopic findings are indispensable in planning the most desirable form of treatment and in avoiding real dangers. For example, pneumoperitoneum and pneumothorax may be hazardous in the presence of significant bronchial disease. The same obviously applies to thoracoplasty and resection.

Because of limited facilities and personnel, we have been unable to carry out routine bronchoscopy; but, nevertheless, we recognize its real importance in sanatorium practice. As is noted in Table I, in 363 discharges from July, 1939, through June, 1940, only 7 bronchoscopies were carried out; whereas, of 419 patients discharged from Blue Ridge Sanatorium from July, 1951, through June, 1952, 179 had bronchoscopies.

STREPTOMYCIN AND PARA-AMINOSALICYLIC ACID

Streptomycin was discovered in 1944, but was not widely used clinically until 1947. Attention immediately centered on a suitable dosage regime which would minimize the emergence of resistant tubercle bacilli in the sputum, and the manifestations of drug toxicity. The 120-day courses consisting of 1.0 or 2.0 grams daily were highly effective therapeutically, but were associated with a very high incidence of undesirable side effects. The shorter courses of 30 grams and 45 grams, 1.0 gram daily, were less effective therapeutically, but undesirable aspects of treatment were lessened.[39,40,41] It was later found that intermittent dosage consisting of 1.0 gram every third day for 120 days was the most ideal in every way.[42]

With the introduction of P.A.S. in 1946[43] combined therapy with intermittent streptomycin and P.A.S. became more popular. Numerous reports have shown that the incidence of emergence of resistant organisms in the sputum is less than 5%. Toxic manifestations are low. Therapeutic effectiveness is at its maximum, as evidenced by a 50% conversion of the sputum to negative by culture, 80% to 90% improvement in x-ray, and 80% to 90% improvement in clinical symptoms.[44,45] D'Esopo[46] observes similar findings in a small number of patients treated continuously from eighteen months to two years.

D'Esopo[46] also found that smears of lesions resected in these patients frequently disclosed bacilli but they could not be cultured and it was impossible to reproduce the typical tuberculous disease in guinea pigs. Medlar[47] observed similar findings in a study of resected lesions from patients who had been treated with combined intermittent streptomycin and P.A.S. for a period of from four months to a year. It is natural to conclude that some profound change has taken place in the biological characteristics of the organism. Are the organisms killed? This is a question which remains to be answered.

The trend today is to continue treatment with streptomycin, 1.0 gram every third day with P.A.S. 12 grams daily, indefinitely if necessary or until definitive treatment has been completed. We feel that whenever drug therapy is indicated, a course should cover a minimum period of eight to twelve months.

It can be said that combined streptomycin and P.A.S., particularly the prolonged courses, have been highly effective in the general treatment of tuberculosis. No other single advance in treatment has contributed as much to the safe application of excisional surgery in particular.

SUMMARY

On the basis of the collapse therapy with surgical and other procedures employed on patients discharged from Blue Ridge Sanatorium from July, 1939, through June, 1952, the recent trends in the treatment of pulmonary tuberculosis have been presented. The most obvious recent trend has been toward pulmonary resection and combined long term administration of streptomycin and P.A.S. A decline in artificial pneumothorax and temporary phrenic operation is definitely evident. Pneumoperitoneum is the tem-

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porary collapse procedure of choice in our experience.

An attempt has been made to justify the rationale for the newer methods of treatment, chiefly pulmonary resection, but we are aware of the fact that additional time must elapse for more thorough evaluation.

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NBC to Carry Health Series.

Another series of health education radio programs will be presented this year by the American Medical Association in cooperation with the National Broadcasting System. The series entitled "Medicine, USA—1953" will be broadcast from New York on six successive Saturdays, beginning March 21 and running through April 25, from 8:30 to 9 p.m., EST. Subjects include: problems of aging, arthritis, problems of deafness, anesthesia, rural health, and exceptional children. State and county medical societies are urged to encourage local stations to carry the series.

PR Aid—"Your Doctor" Film.

Tops on the list of 1953 public relations aids for medical societies is the "Your Doctor" film. Local societies are urged to continue its promotion through two channels—(1) encourage commercial theaters to book the film through RKO-Radio Pictures; (2) arrange showings of the 16mm version to all segments of the community.

In most areas, a brief announcement of the availability of "Your Doctor" will stimulate a continuing demand. The 16mm version can be booked in two ways. The AMA has arranged for Modern Talking Picture Service to handle orders throughout the country. Only charge is for postage and insurance. The second booking method is through state and county societies. Individual prints may be secured at $70 per copy from RKO-Radio Pictures and requests filled by society offices. Purchase 16mm prints from Mr. Arthur M. Good, RKO-Radio Pictures, 1270 Avenue of the Americas, New York, N. Y.

XUM

CHOLECYSTECTOMY AS EMPLOYED FOR THE TREATMENT OF ACUTE AND CHRONIC CHOLECYSTITIS AND CHOLELITHIASIS*

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and
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The management of acute cholecystitis remains a fairly controversial subject after many years of general interest in the problem and many studies reported in the literature. In general it may be said that there are two schools of thought on the manner of treatment preferred. One group urges early operation as soon as the diagnosis is assured with cholecystectomy the procedure of choice. The other group favors conservative management of the acute case during the early, stormy stage and elective surgery later. A third group may be said to exist who profess to "individualize" each case and may follow the course of action just described according to the duration of the symptoms, the severity of the disease and the age of the patient.

It is not our intention to introduce any new or radical ideas of therapy, but merely to present a series of cases of acute cholecystitis treated at the C. & O. Hospital of Clifton Forge, Va., over the years 1943 to 1951, inclusive. One hundred and fifty-one cases of acute cholecystitis are presented and contrasted with 395 cases of chronic cholecystitis encountered over the same period of time. This report differs from those of the larger institutions in that all cases have been under the direction of one surgical service, rather than several different services of necessarily varying convictions. Early operation has been uniformly employed for acute cholecystitis and cholecystectomy has been performed in all but two cases.

Of the reported cases, 144 were white and 7 colored; 94 were females and 57 males. Ages ranged from 17 to 84 years—(Figure 1). The largest number, forty-five, were between 60 and 69 years of age. There were 2 under 20 years, 9 from 20 to 29 years, 20 from 30 to 39 years, 26 from 40 to 49 years, 23 from 50 to 59 years, 23 from 70 to 79 years and 3 from 80 to 89 years.

The most common symptom has been typical right upper quadrant pain radiating to the right subscapular region, this being reported by 123 patients. Left upper quadrant, lower quadrant or chest pain was termed atypical and was noted in 23 cases. Nausea was a complaint in 113 cases, vomiting in 102 and jaundice in 14. Tenderness in the right upper quadrant was the most common sign and was encountered in 140 instances. Muscle spasm in the right upper quadrant was recorded 59 times and a mass was palpable in the gall bladder region in 54 patients. Jaundice was clinically obvious and recorded only seven times.

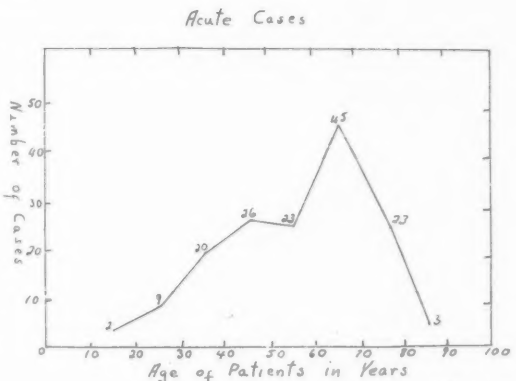

Figure No. 1

Fifty-five patients had an admission temperature over 100 degrees, 56 had temperatures ranging from normal to 100 degrees and 40 had normal temperatures. An icterus index above 12 was obtained in 36 instances between 6 and 12 in 82 and less than 6 in 33. Seventy-seven patients had white blood counts exceeding 10,000 and 113 patients had a polymorphonuclear leukocyte count over 75%—(Figure 2).

Radiologically speaking, there were 63 non-functioning gall bladders with stones. Poor function was reported in five cases and one cholecystogram was normal. Sixty-two patients were not X-rayed

*Read before the annual meeting of The Medical Society of Virginia, at Richmond, September 28—October 1, 1952.

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ACUTE CASES

Temperature Range	
Above 100 degrees F	35.8%
98.6 degrees to 100 degrees F	35.9%
Normal	28.3%
White Blood Count	
Above 10,000	50.9%
Below 10,000	49.1%
Polymorphonuclear Leukocytes	
Over 75%	74.8%
Under 75%	25.2%
Pathological Diagnosis	
Acute Cholecystitis with chronic changes	68.2%
Empyema and Gangrene	31.8%

Figure 2.

because of nausea and vomiting or because of clinical certainty of the diagnosis. The admitting officer's clinical impression was acute cholecystitis in 67 instances, gall bladder disease of other type or phase in 67, and other diseases in 17. Among the initial clinical errors, peptic ulcer disease and coronary occlusion were most frequently diagnosed.

The pathologist in each case reported acute cholecystitis, the diagnosis being based upon the accepted features of edema, submucosal hemorrhage, hyperemia, and in the more severe cases leukocytic infiltration, necrosis and gangrene. Empyema and gangrene were reported in 48 cases, and acute cholecystitis with chronic changes was the diagnosis in the remaining 103. No "clinically acute" cases were included without histologic confirmation.

The average duration of acute symptoms on admission was five days. The average hospital day upon which surgery was performed was 4.5. Ochsner in an analysis of 468 cases of acute cholecystitis pointed out that in his judgment the optimum time for surgical intervention was within the first 72 hours or later than 10 days. The case fatality rate in his series operated upon between 4 and 10 days was appreciably greater than those operated early. One hundred of our cases were operated in less than four days. It was also noted that the chronicity of symptoms in Ochsner's cases was correlated with an increase in case morbidity and fatality, as is proven in our series.

Cholecystectomy, usually combined with appendectomy, was performed in 149 cases and choledocholithotomy was added in 20 instances in which common duct stones were also present. Cholecystotomy was employed only two times—1.3%.

In comparing the 151 acute cases with 395 cases of chronic cholecystitis operated during the period of study, the following is noted: the overall surgical mortality in the acute cases was 3.3% and in the chronic cases 1.7%. Morbidity (defined as post-operative temperature over 100 degrees) in acute cases averaged 1.9 days and in the chronic cases also 1.9 days. Post-operative hospital stay averaged 12 days in the acute cases and 10.5 days in the chronic cases—(Figure 3).

ACUTE CASES

Post-Operative Results	
Mortality: acute cases	3.3%
chronic cases	1.7%
Morbidity: acute cases	1.9 days
chronic cases	1.9 days
Hospital Stay Post-Operatively:	
acute cases	12 days
chronic cases	10.5 days

Figure 3.

Surgical complications developed in the acute cases in 7.3%. There were five instances of femoral thrombophlebitis, four of wound dehisence, and one of hemorrhage from the operative site necessitating re-operation. Complications of the chronic cases, occurring in 5.6%, consisted of femoral thrombophlebitis in four, wound dehisence in eight, pneumonia in six and one each for the following: subdiaphragmatic abscess requiring drainage, cerebral thrombosis, acute pancreatitis, and appendiceal stump abscess in a case combined with appendectomy.

Late sequelae in the acute cases consisted of four instances of subsequent choledocholithotomy, an incidence of 2.6%. Following choledocholithotomy these patients have remained well. Among the chronic cases 1.3% were re-operated for common duct stones and in one of these cases an intraperitoneal abscess and benign stricture of the common duct were encountered.

The causes of death in the fatal cases were as follows: in the acute cases there was one "anesthetic" death in the operating room at the completion of surgery and there were three deaths from cerebral embolism, two of which had chronic heart disease and one had femoral thrombophlebitis with a patent foramen ovale. There was also one death from heart failure, bilateral effusion and wound dehisence—(Figure 4). One death among the acute cases fol-

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ACUTE CASES

Causes of Death

1. One death in operating room (anesthetic death)
2. Three deaths from cerebral embolism
   a. Two had chronic heart disease
   b. One had femoral thrombophlebitis with patent foramen ovale
3. One death from heart failure, bilateral pleural effusion and wound dehisence (a cholecystostomy case)

Figure 4.

lowed one of the two cholecystostomies. Among the chronic cases there was one death due to each of the following causes: cerebral thrombosis, acute post-operative pancreatitis, uremia and peritonitis following re-exploration of the common duct.

Increased mortality and increased technical difficulty encountered are probably the most common objections offered to early definitive surgery in acute cholecystitis. The mortality of 3.3% in this small series compares with that previously reported for surgical treatment in the acute phase, such as the 2.7% in 697 cases of Heuer and Glenn, the 6.2% in the 127 cases of Root and Priestly, and the 5.3% in the 320 cases of McClure and Fallis. In regard to the mortality of this series it should be noted that 71 patients, or almost 50%, were over 60 years of age, thus being in the group inevitably associated with higher mortality. It should be remarked also that cholecystotomy, which in all reports carries a higher mortality due chiefly to poor risk selection, was employed only twice in this series, one of which terminated fatally. Of interest is the fact that only one of the deaths detailed above was attributable directly to the disease at hand. There is no question that operation is more difficult during the acute phase of cholecystitis due to the intense inflammation, but it was possible to perform cholecystectomy in 149 of the 151 cases of this series and to add choledocholithotomy to 20 cases in which it was indicated. The incidence of early and late complications was slightly higher in the acute cases than in the chronic ones as shown above; but the morbidity was precisely the same and the post-operative hospital stay not significantly different. It is believed that the early resolution of the pathologic process, the prevention of disastrous complications associated with gangrene and rupture, and sparing the patient weeks of suffering and disability justify the employment of early definitive surgery in acute cholecystitis.

Summary

The management of 151 cases of acute cholecystitis observed over the nine year period from 1943 to 1951 inclusive has been discussed, all cases being diagnosed finally by histologic examination. The total number of cases were operated early in the acute phase and all but two had cholecystectomy. To cholecystectomy, choledocholithotomy was added in 20 instances and cholecystotomy was employed only twice. The group of acute cases was contrasted with 395 chronic cases operated during the same period of time. It is our belief that early definitive surgery is the treatment of choice for acute cholecystitis.

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REMARKS ON THE TUBERCULIN TEST AND BCG VACCINE*

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At first glance it would appear unnecessary to discuss the use of the tuberculin test before this audience. On the other hand, it often pays to review certain subjects which have been known for so long that they are actually in danger of being forgotten and relegated to the past. Dr. John F. Briggs refers to the tuberculin test as "The Forgotten Test". There is a surprisingly large number of physicians who think of the tuberculin test as a procedure used only by epidemiologists and who never consider it as an aid in the routine practice of medicine.

In the practice of medicine the tuberculin test is of great value in the differential diagnosis of tuberculosis. In this connection, in adults, a negative reaction has considerably more significance than a positive one. On the other hand, in children, particularly under the age of two, a positive test has considerably more significance than in adults. In the presence of such conditions as obscure fevers. pulmonary lesions which may or may not resemble "typical" tuberculous lesions, renal infections of uncertain etiology—and so on—a negative tuberculin reaction for all practical purposes rules out tuberculosis as the etiology. Under similar circumstances a positive test has no diagnostic significance unless it is known that the individual has become tuberculin positive more or less coincident with development of symptoms. It has been reported that false negative tests may be obtained during the course of certain acute infections, such as measles and influezna, during the latter part of pregnancy and in some cases of terminal tuberculosis. These reactions are uncommon and repeated testing under these circumstances will almost always give positive reactions if tuberculosis is, or has been, present.

As an epidemiologic tool the tuberculin test offers the only practical means of determining the incidence of tuberculosis in a given group. The incidence of positive reactors in the general population is steadily decreasing. As the incidence of positive reactors falls, the positive test becomes more and more significant.

*Read before the annual meeting of The Medical Society of Virginia, at Richmond, September 28—October 1, 1952.

Finally, we use the tuberculin test to determine candidates for BCG vaccination and, following vaccination, to determine the potency of the vaccine.

Cohen stresses the importance of correctly administering and accurately interpreting the test if it is to be of value.

The Mantoux or intradermal test is the method of choice at least for routine use. The Vollmer patch test is, perhaps, more practical for large scale testing but non-reactors to the patch test should be tested intradermally before they are classed as tuberculin negative. The intradermal test can be performed with either Old Tuberculin (OT) or with PPD. Old Tuberculin is made by boiling, filtering and concentrating a bouillon culture of human tubercle bacilli and is supplied commercially undiluted with accompanying diluent and instructions for preparing proper dilutions. Though there is some disagreement on this subject, it is generally believed that, following dilution, Old Tuberculin does not lose a significant degree of potency over a one month period if kept under refrigeration at 40°F. Standard practice is to test the individual first with 0.01 mgm. of O.T. (0.1 cc. of a 1:10,000 dilution), injecting the material intradermally on the flexor surface of the forearm. Properly done, such an injection will produce a wheal 7-8 mm. in diameter. The test should be read in 48 and 72 hours, a positive reaction consisting of induration and edema of not less than 5 mm. in diameter with or without erythema. If there is no reaction to the first test, a second test is made using 1.0 mgm. O.T. (0.1 cc. of a 1:100 dilution). Reading is carried out as before. It is probably unnecessary to use more than 1.0 mgm. O.T. since certainly the vast majority of people who have or have had tuberculosis will react to 1.0 mgm. or less. However, it is sometimes prudent to employ less than 0.01 mgm. for the first test if an unusual degree of hypersensitivity is suspected. Should the first test with 0.01 mgm. O.T. be doubtful, it is wise to use 0.1 mgm. O.T. as the second test to avoid excessive reaction with possible necrosis and later scar formation.

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PPD, a purified protein fraction isolated from culture filtrates of human tubercle bacilli, is supplied commercially in tablet form with diluent and instructions for preparing the proper dilutions. The first strength PPD contains in 0.1 cc. 0.00002 mgm. PPD, and is equivalent to 0.01 mgm. O.T. The second strength contains in 0.1 cc. .005 mgm. PPD and is equivalent to 2.5 mgm. O.T. An intermediate strength is supplied which corresponds to 0.1 mgm. O.T. This material is used in the same way as O.T. PPD is said to be more specific than O.T. and has less tendency to produce severe local reactions. On the other hand, PPD is less stable than O.T, following dilution and should be used immediately.

It is to be emphasized that edema or induration and not erythema is the criterion of a positive test. It should be further emphasized that the tuberculin test does not measure immunity nor does a positive test reflect the degree of tuberculous activity.

Let us now turn to a brief discussion of BCG vaccine. BCG vaccine is prepared from a non-virulent strain of bovine tubercle bacilli originally isolated by Nocard in 1906 from the milk of a tuberculous cow. Two French investigators, Calmette and Guérin, working with this bacillus observed that, after successive transplants onto a bile-potato medium, the virulence of the organism had diminished until it was no longer harmful to animals. Further, animals inoculated with this organism were resistant to later inoculation of virulent tubercle bacilli. Numerous animal studies were undertaken and, in 1921, Weill-Halle in Paris began inoculating infants. The same year, Calmette named the organism BCG and in 1924 he declared that the virulence of the organism was permanently fixed and it was harmless for humans. The use of the vaccine then spread widely through eastern Europe and the Scandinavian countries with Heimbeck and Scheel in Norway and Wallgren in Denmark among the principal investigators.

Since that time BCG vaccination has become standard practice in many European countries. It has recently been estimated that more than 50,000,000 people have been vaccinated throughout the world. The United States has been slow to accept BCG and probably rightly so, since it is in the United States that the time tested control measures have shown the best results.

However, the United States Public Health Service and most of the groups for the study of tuberculosis have now approved the use of the vaccine in certain highly exposed groups such as student nurses, medical students and sanatorium personnel.

The theory behind vaccination is based on the generally accepted view that infection with a pathogenic type of tubercle bacillus produces, after an interval, an increase in resistance to subsequent tuberculous infection. It is also accepted that tuberculin allergy normally follows this first infection and appears more or less at the same time as the acquired resistance. It is further admitted that a first or primary infection can, instead of healing, progress to clinical forms of tuberculosis indistinguishable from re-infection tuberculosis. If we can substitute for this virulent and unpredictable primary infection an infection of controlled virulence which is incapable of progression, we may then achieve acquired resistance without danger.

A great mass of literature has accumulated which indicates that the virulence of the BCG cultures is fixed and that it is harmless to man and susceptible animals. Prior to 1930 there was some evidence indicating that the virulence of BCG had spontaneously increased, but since 1930 there has been no evidence put forward to show that it is possible by cultural methods to produce a return of dangerous virulence. It is suspected that prior to 1930 there was a virulent "S" variant in the strain which died out about 1930 and since then the strain has been composed purely of the non-virulent "R" component.

Clinically, results bear this out. Aronson and Aronson stated in 1951 that up to that time there had been no proven case of progressive tuberculosis due to BCG in man or animals. Even prior to 1930 only a few suspicious cases were reported and these were not proven. Since 1930 there have been no suspicious cases reported. When one remembers that over 50,000,000 vaccinations have been carried out this lack of proven or suspicious cases of progressive tuberculosis is almost astounding. It would certainly appear that the vaccine is safe.

As to the effectiveness of BCG vaccine, there have been innumerable reports indicating, almost universally, a significant degree of protection by the vaccine. Irvine, in his monograph, summarized the results of the major studies which indicated a control group and found that the percentage of vaccinated subjects

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protected varied from 70-100 per cent with the exception of the studies of Scheel, whose results showed 57 per cent protected, and the studies of Levine and Sackett who found no protection from the vaccine. This latter study is the only recorded statistical investigation that shows no protective value for vaccination. One of the larger and better controlled studies is that of Aronson and Palmer, carried out among North American Indians in the United States and Alaska. The latest report on this study shows that among 1551 vaccinated persons followed for a total of 21,245.5 person years, there were 12 deaths from tuberculosis while among 1457 controls followed for a total of 19,520.5 person years, there were 65 deaths from tuberculosis, giving mortality rates of 0.56 per 1000 person years for the vaccinated group and 3.32 per 1000 person years for the control group. Heimbeck's studies on student nurses at Oslo showed a tuberculous morbidity rate of 141.2 per 1000 observation years in the control group and a rate of 24.1 in the vaccinated group. The tuberculous mortality rates were 14.6 and 2.1 respectively. These reports are representative of many others too numerous to record here.

One of the most valid arguments against the use of BCG vaccine is that by artificially producing tuberculin hypersensitivity, we are depriving the vaccinated individual of one means of determining whether or not he does later develop a natural infection. In other words, vaccination with BCG renders the tuberculin test valueless from the standpoint of differential diagnosis and epidemiology. This argument is sound, particularly as regards the general population. However, the groups for which the vaccine is recommended have much less likelihood of remaining tuberculin negative than the general population. Our own studies among student nurses at the Medical College of Virginia Hospital show that 85 per cent or more of the nurses finishing training have a positive tuberculin reaction. This argument then loses its validity for these groups. If these individuals are fairly certain to develop a natural primary infection during their training, it certainly seems reasonable to try to substitute for this natural infection a controlled, benign infection.

Another argument against the use of BCG stems from the feeling of some investigators that it is only re-infection tuberculosis which produces clinical disease and that by producing a tuberculous focus in the body, even though it is artificial and in itself benign, we are producing the hypersensitivity necessary for the introduction of the re-infection disease. This concept is not shared by all, but, even if it were, the same arguments would apply as stated above. It must be remembered that we are still far short of the goal of being able to satisfactorily isolate all infection cases of tuberculosis. Indeed, if such were the case there would be no need for a vaccine.

The technic of vaccination should be briefly commented upon. In the past the vaccine was originally given orally. A few cases of cervical adenitis developed but the chief reason for discarding this method was the slowness with which tuberculin allergy and, presumably, acquired resistance appeared. Subcutaneous injection was then tried but in many cases local necrosis, draining sinuses and regional adenitis appeared. The methods now in general use are the multiple puncture or sacrification techniques and with these methods local reactions are practically nil. In our own small series we have noted no significant local reactions whatever. Following vaccination small papules develop at the site of the punctures but these, in our experience, are often barely visible two months later. The tuberculin test becomes positive in over 90 per cent of cases within six to eight weeks after vaccination and remains positive indefinitely. Aronson's study on the North American Indian showed a persistence of hypersensitivity among the vaccinated ranging from 93.3% one year following vaccination to 90.2% eleven years later. Among the controls hypersensitivity increased from 12.7% one year after the study began to 41.7% after eleven years.

It seems justified to conclude, as Dr. Johannes Holm expresses it, that BCG vaccination "protects almost completely against the tuberculous primary infection and it also affords considerable protection against genuine tuberculosis of the various organs—in particular against pthisis."

SUMMARY AND CONCLUSIONS

We have attempted to review briefly the use of the tuberculin test with particular reference to its use as a standard procedure in the practice of medicine. We have also presented briefly some of the arguments for and against the use of BCG vaccine. It is our conclusion that BCG vaccine has a definite place

among our weapons in the fight against tuberculosis though its use should be restricted to groups whose occupational hazard as regards tuberculosis is high.

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Name AMA Delegates to World Medical Meetings.

AMA representatives to two important world medical meetings—the World Medical Association and the First World Conference on Medical Education—have been announced by the Board of Trustees.

Delegates, alternates and observers to the World Medical Association meeting to be held August 31-September 4, 1953, at The Hague, The Netherlands, include: Drs. Gunnar Gundersen, E.S. Hamilton, Dwight H. Murray, F. J. L. Blasingame, George F. Lull and Austin Smith.

The following representatives will attend the First World Conference on Medical Education August 24-29, 1953, in London: Drs. Donald G. Anderson, Herman Weiskotten, Victor Johnson, E. S. Hamilton and Austin Smith.

Ralph P. Creer, secretary of the Committee on Medical Motion Pictures has been invited to speak on "Motion Pictures in Medical Education" at the London conference. His paper will include a discussion of the value of motion pictures in medical teaching and the international exchange of medical films.

New Books.

Below are listed some of the newer additions to the Tompkins-McCaw Library of the Medical College of Virginia, Richmond. These may be borrowed under usual library rules.

American Academy of Orthopedic Surgeons—Instructional course lectures. Vol. 9, 1952.

American Rheumatism Association—Rheumatic diseases. 1952.

Ayre—Cancer cytology of the uterus. 1951.

Brain—Diseases of the nervous system. 4th ed., 1951.

DePalma—Surgery of the shoulder. 1950.

Herrmann—Diseases of the heart and arteries. 4th ed., 1952.

Hildreth & Hildreth—The low fat diet cook book. 1952.

Holmes—Introduction to clinical neurology. 2d ed., 1952.

Josiah Macy Foundation—Liver injury. 1953.

Josiah Macy Foundation—Problems of infancy and childhood. 1953.

Lull & Kimbrough, eds.—Clinical obstetrics. 1953.

Moseley—Textbook of surgery. 1952.

Ropes & Bauer—Synovial fluid changes in joint disease. 1953.

Tullis, ed.—Blood cells and plasma proteins. 1953.

Waksman—The literature on streptomycin—1944-1952. 1952.

Watson-Jones—Fractures and joint injuries. Vol. 1, 4th ed., 1952.

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DISSEMINATED COCCIDIOIDOMYCOSIS— REPORT OF A CASE

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Generalized coccidioidomycosis, first reported in this country by Rixford in 1894[1], caused only two reported deaths in Virginia from 1949 to 1951[2]. Many servicemen are known to have contracted "benign" primary infection, while in camps in Texas, Arizona, and California. They run the risk of developing a severe, disseminated type of infection[3]. The true nature of this disease is rarely recognized clinically in such sporadic infections. The following case is being reported because it illustrates such a course.

CASE REPORT

A 25 year old white male was admitted on 3-4-52 complaining of increasing lethargy and difficulty of concentration of 30 days' duration. The patient was born in North Carolina and spent his early childhood there. He was in Texas for 18 months in 1948 and 1949 while in college. Approximately one month prior to admission he noted increasing lethargy, inability to do his work, and general disinterest. His friends stated that he had become grossly untidy and had little interest in his personal habits. Detailed information could not be elicited because of his inability to concentrate; but he complained vaguely of blurring vision and mild frontal headaches. Initial examination revealed a poorly nourished, chronically ill white male with no acute distress, completely disinterested in his surroundings. The pulse, temperature, respiration, and blood pressure were normal. He had a moderately stiff neck and there was obvious clumsiness in executing fine movements, but this was attributed to his limited attention span. The remainder of the examination was not remarkable. Examination of blood and urine revealed no abnormalities. A Kahn test on his blood serum was negative. X-ray pictures of the chest and skull were negative. A lumbar puncture was done shortly after admission and the initial pressure was 340 mm. water with a closing pressure of 260 mm. water. The spinal fluid contained 443 white blood cells per cubic millimeter with 67 per cent polys; and 556 mgm. chloride, 25 mgm. sugar and 268 mgm. protein per 100 milliliters. Examination of additional specimens of spinal fluid generally yielded similar results. Smears of the spinal fluid, examined at this hospital, were reported negative for acid fast bacilli; however, aliquot portions of spinal fluid were reported positive for "atypical acid fast forms" at another hospital. A culture of the sputum, taken shortly after admission, was reported positive for acid fast bacteria. No other sputa were reported positive, either by smear or culture. A diagnosis of tuberculous meningitis was made and the patient was treated with streptomycin intramuscularly and intrathecally. In addition, he was treated with streptokinase and PAS without improvement. He died 72 days after admission, with terminal evidence of pyelonephritis.

AUTOPSY

The pertinent findings were:

Severe congestion and edema of the lungs. A calcified mass, 2 cm. in diameter, was found in the left apex. Several minute grey white nodules could be seen shining through the capsule of the spleen, and many small white grey nodules, 1 mm. in diameter, were noted in the substance of the spleen. Irregular areas of yellowish discoloration, averaging 0.3 cm. in diameter, were noted beneath the capsule of the liver. Upon transection, these had the consistency and appearance of granulomatous foci with softening. The pelvis of the right kidney was dilated and contained necrotic material. The mucosa of the pelvis was congested and hemorrhagic. In addition, many minute abscesses were found in both poles of the left kidney. The leptomeninges and the base of the brain were markedly congested and infiltrated by a thick, greyish white, granular, gelatinous exudate. This involved the medial surface of the pons, cerebellum, midbrain, and the pituitary, and extended over the uvula and completely obliterated the cerebropontine angle. Horizontal sectioning revealed slight edema and congestion of the white matter. The ventricles were markedly dilated and congested. (Figure No. 1). Anatomical diagnoses: (1) Tuberculous meningitis; (2) Terminal pyelonephritis.

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Sponsored by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are a result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

MICROSCOPY

Examination of sections from the encapsulated area of caseation within the left lung revealed marked inflammatory reaction and acid fast bacilli in sections stained by the Ziehl-Nielson technique. The spleen and liver contain a few granulomas. (Figure No. 2). The meninges also contain granulomatous foci. Within the granulation tissue are many spherules with endosporulation, similar to those of the liver.

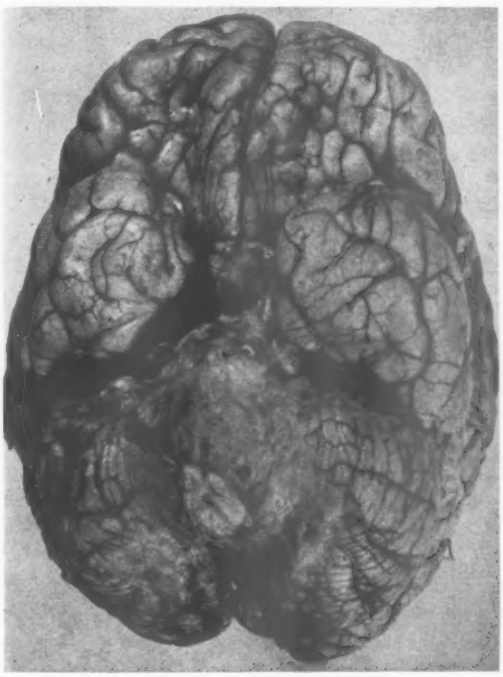

Fig. 1. The leptomeninges at the base of the brain are covered by a thick, gelatinous exudate.

The clinical diagnosis of active pyelonephritis is substantiated by histological examination of sections of the kidneys. The final diagnoses: (1) Disseminated coccidioidomycosis; (2) Terminal pyelonephritis; (3) Pulmonary tuberculosis.

COMMENT

The microscopic findings in the lung explain why acid fast bacteria were found in the sputum on one occasion. However, no portal of entry could be demonstrated for the coccidioidomycosis. Inoculation of a guinea pig with spinal fluid, removed ante mortem, resulted in a primary focus at the site of injection. The guinea pig was sacrificed and culture of the material removed from the site of injection revealed a white fluffy fungus which was not investigated further, due to the extreme danger of opening such cultures.

SUMMARY

A fatal case of coccidioidomycosis is reported.

The case was complicated by concomitant pulmonary tuberculosis which served to obscure the diagnosis.

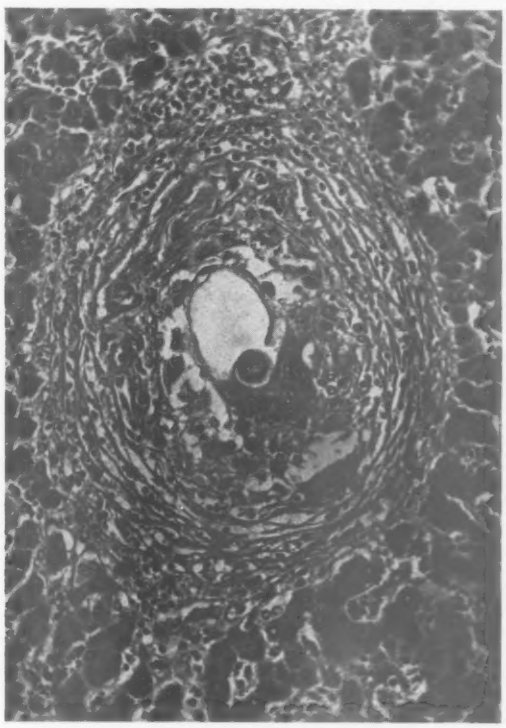

Fig. 2. Coccidioidogranuloma of the liver. In the center of the granuloma is a giant cell with a spherule containing endospores.

Attention is again drawn to the fact that persons exposed to infection with coccidioidomycosis may develop fatal dissemination many years after such exposures.

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2. Personal Communication from the Bureau of Vital Statistics, Department of Health, State of Virginia.
3. Forbus, W.: Coccidioidomycosis. A study of 95 Cases of Disseminated Type with Special Reference to Pathogenesis of Disease. Mil. Surg., 99:653, November, 1946.

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PUBLIC HEALTH

MACK I. SHANHOLTZ, M.D.
State Health Commissioner of Virginia

Virginia's Newest Program: Veterinary Public Health.

The most recent member of the public health team at the state level is a public health trained veterinarian. It will be in his province to investigate, measure and control those diseases of lower animals which directly or indirectly affect the health of man.

Although the practice of veterinary medicine has long been an important bulwark in the control of many of man's communicable diseases, it is only fairly recently that health departments have organized long needed programs in this broad field. The term "veterinary public health," although relatively new, has already gained wide acceptance. The World Health Organization defines it as "all the community efforts influencing and influenced by the veterinary medical arts and sciences applied to the prevention of disease, protection of life and promotion of the well being and efficiency of man."

Besides Virginia, there are now 20 other states in the country that have full time public health veterinarians on their health department staffs. The duties of the state public health veterinarian may be broken down into the following broad categories:

1. Development of programs to control and eradicate animal diseases transmissible to man.
2. Development of activities for the inspection and sanitary production of all foods of animal origin.
3. Consultation with other operational units in the health department, with voluntary agencies, local health units and the veterinary service of the agricultural department.
4. Engagement in research activities, field and laboratory investigational projects in diagnostic methodology and control procedures, such as immunization experiments.

There are over 80 diseases of animals communicable to man. Fortunately not all of them are of major public health significance in the United States today. Of those diseases which concern us in the realm of veterinary public health the following may be cited as examples: *Bacterial diseases*—Leptospirosis, salmonellosis, brucellosis, anthrax; *Mycotic diseases*—Histoplasmosis, coccidioidomycosis, ringworm; *Parasitic diseases*—Creeping eruption (cutaneous ancylostomiosis), hydatidosis and beef tapeworm; *Viral diseases*—psitticosis, encephalitis, rabies; *Rickettsial disease*—Q fever. Several of the animal diseases of importance to human health are of equal importance to livestock economy. In dealing with these, the public health veterinarian works with the veterinary service of the agriculture department in a coordinated, double-barrelled attack on the problem diseases. Outstanding examples of these are brucellosis, leptospirosis and bovine tuberculosis.

As in the control of all communicable diseases, the practicing physician is the key person in reporting the disease to the epidemiologist. If there is a question of an animal reservoir, he is assisted by the public health veterinarian, who helps locate the origin of the infection and institutes control barriers to prevent further transmission.

By establishing state minimum standards and offering consultative services, the public health veterinarian will be in a position to assist local health jurisdictions to improve the hygienic and sanitary producton of disease—free meat, poultry and dairy products.

By far the greatest single veterinary public health problem in Virginia today is the current outbreak of rabies. The disease at present is discretely distributed in the state in three principal areas, north, southwest and the tidewater area, including the eastern shore. The State Health Department's veterinary program is concentrating the bulk of its efforts at present in assisting the three affected areas in organizing sound rabies control programs.

MONTHLY REPORT OF THE BUREAU OF COMMUNICABLE DISEASE CONTROL

	March 1953	March 1952	Jan.-March 1953	Jan.-March 1952
Brucellosis	6	1	15	4
Diarrhea & Dysentery	125	121	333	450
Diphtheria	15	5	44	27
Hepatitis	142	76	278	212
Measles	749	3288	1494	6115
Meningitis (Meningococcic)	27	22	87	53
Poliomyelitis	2	3	7	11
Rocky Mt. Spotted Fever	0	0	0	2
Scarlet Fever	112	88	344	264
Tularemia	3	1	13	22
Typhoid & Paratyphoid	4	5	12	14
Rabies in animals	56	73	152	169

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Medical Society of Virginia Cancer Committee

Chairman, George Cooper, Jr., M. D.

Albemarle Hotel Building, Charlottesville, Va.

Reprints of this and preceding Bulletins may be obtained from this office

MAY 1, 1953

The Biopsy

The following case history is recorded at one of the tumor clinics certificated by this Committee:

A 45 year old man, on a clinical diagnosis of chancre, received antiluetic treatment for a persistent sore on the lip. It was six months before the patient was referred to a tumor clinic, during which time the sore had developed into a fungating mass measuring 3 x 5 cm. A biopsy revealed carcinoma and there were palpable submental nodes.

The biopsy is one of the most valuable methods of diagnosis available. Omission of or delay in carrying out this simple but essential procedure, when indicated, on discovery of lesions even remotely suspicious of cancer is foolhardy. It is impossible in the limits of this bulletin to discuss contraindications to biopsy. When in doubt, the patient should be referred to an expert.

A biopsy is most valuable when it is considered the basis for consultation between clinician and pathologist. The pathologist can give an accurate opinion only when the tissue is accompanied by pertinent information from the history, physical, and laboratory examinations, as well as a description of the lesion and accurate location of the site of biopsy.

The actual technique varies with the individual lesion, but the following general suggestions should be helpful.

1. Be generous in the amount of tissue submitted and gentle in its handling. Minute fragments squeezed between forceps during removal are usually useless for microscopic study.

2. If, because of the size of the lesion, complete excision is impractical, it is often desirable to take several specimens from a single lesion. These should be numbered and accurately located so that both surgeon and pathologist will know where in the lesion specific changes have occurred.

3. The advancing edge of the lesion is frequently more illustrative of the essential pathological change than is its center. The biopsy should include both normal and abnormal tissue.

4. Avoid necrotic tissue.

5. Tissue from an accessible lesion is best obtained by sharp scalpel dissection. The use of the electric knife in obtaining material for pathological study is permissible when the line of excision does not pass through the lesion. The hot cautery is not recommended for biopsy work, coagulation being too extensive.

Because it crushes tissue, the punch forceps should be reserved for removal of specimens through an endoscopic instrument.

Aspiration biopsies of solid tumor should be done only after consultation with the pathologist.

6. Satisfactory histologic sections cannot be made from tissue which has become dry. If the specimen cannot be given to the pathologist immediately after excision, it should be fixed in about ten times its volume of 10% formalin or 4% formaldehyde.

Cancer can be diagnosed from cells found in pleural or ascitic fluid only when the fluid is absolutely fresh.

All lymph nodes and large masses should be bisected before fixation to permit thorough permeation of the fixative.

7. The modern plastic mailing tube with cardboard container is the simplest and least expensive of mailing devices. These can be obtained from any druggist. Larger specimens, according to postal law, must be placed in water tight containers and then wrapped with enough absorbent material to take up leakage.

8. The Bureau of Cancer Control, State Health Department, will pay for pathological examinations done for indigents by certified pathologists. This service is being utilized more and more frequently by physicians all over Virginia. It is a most valuable assistance to physician and patient. For details, write to: Dr. Mason Romaine, Director, Bureau of Cancer Control, State Health Department, Richmond.

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MENTAL HEALTH

Joseph E. Barrett, M.D.
Commissioner, Department Mental Hygiene and Hosiptals

What of the Aged in the Mental Hospitals?*

One of the wonderful things in life is to "grow old gracefully". It is pathetic, however, that many do not fit into this category because of the mental breakdowns that come in the later years of life. Most of these enter a mental hospital some time during the course of their illness.

Prevention and treatment of physical diseases has advanced at such a rapid pace during the past 50 years that the life expectancy in 1950 is 68 years in contrast to 49.2 years in 1900.[1] The tragic situation is that the prevention and treatment of mental illnesses has not any where near met the advance in physical medicine.

We are certainly faced with a serious situation. This problem cannot be solved by the mental hospitals alone, but must be attacked by the combined efforts of the medical profession, governmental authorities and the public. As shown in publications within the past few years, the medical profession and governmental authorities have begun studying the problem but as yet there does not seem to be a definite solution in sight.

In the four mental hospitals in Virginia, we have approximately a third of our resident patient population in the 60 years of age and older group. (The age of 60, for the beginning of this group, is used because at about this age the mental ills of older people begin.) At the present time, approximately a third of the first admissions are 60 years of age and over.

Population studies have been made on a national basis estimating the 65 years of age and over group will increase from about 12.3 millions in 1950 to 20.8 millions in 1975. This in an increase in this group of approximately 69% in 25 years. Projecting this into those of this group that might be expected to populate the mental hospitals, we reach the astounding situation that 50% or better of the hospital populations would be over 65 years of age in 1975. It is obvious, therefore, that some special planning must be done for this group of patients and that this planning must not be done at the expense of the care and treatment of other patients who have a greater expectancy of leaving the hospital and resuming an active life in the communities.

The charts included in this article give a picture of the increase of both patients resident in hospital and first admissions of those 60 years of age and over for the statistical period of 1940 through 1952. It can be seen that the increase in the past 12 years can be expected to be a greater increase in the next 25 years.

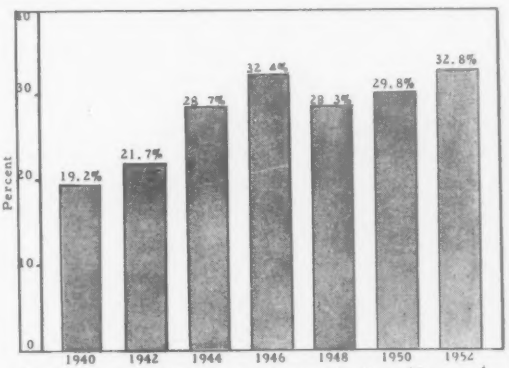

Chart 1. Percent of total first admissions of patients 60 years of age and over admitted to state hospitals 1940 - 1952 by alternate years.

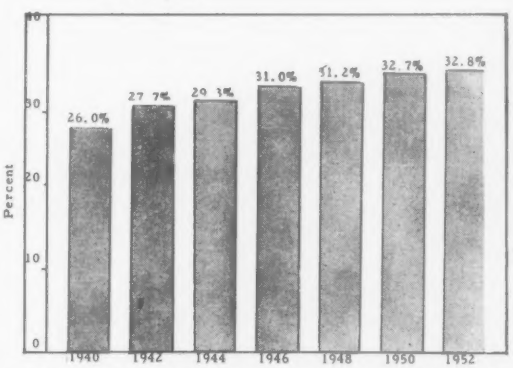

Chart 2. Percent of total patients in resident in state hospitals 60 years of age and over for 1940 - 1952 by alternate years.

The mental disorders of this age group are usually a psychosis caused by cerebral arteriosclerosis or senility. The diagnosis of senility, as such, has been decreasing while that classed as cerebral arteriosclerosis has increased. In many cases the two diseases are so interrelated that the classification becomes difficult. Therefore, quite often they are classed as a group for statistical purposes.

*Article by Edna M. Lantz, Statistician, Department of Mental Hygiene and Hospitals.

The expectancy of discharge in this group is only about 20 for every 100 admissions, therefore, the majority of these die in the hospitals after an average hospital residence of 2½ years. In 1950 the number of deaths of the senile-arteriosclerotic group was 55.2% of the total deaths. This is representative of this situation at the present time, although in view of other factors it may be expected to increase. The discharges of this group are only about 6% of the total discharges.

As many of the admissions over 60 years of age have a short period of life, they do not remain in the hospitals very long before their death. With this in mind, a majority of those over 60 years of age still resident have grown old in the hospitals.

A pilot study has just been completed of the length of time patients that were in hospital June 30, 1952 had been on the records. Twenty-three percent of the total had been in the hospitals 20 years or longer and slightly less than 1% of these were diagnosed as senile-arteriosclerotic. Of the total hospital population, 64.0% had been patients for over 5 years, but only 5.2% of these were diagnosed as senile-arteriosclerotic. Of the total in hospital on June 30, 1952, 11.4% were in the senile-arteriosclerotic diagnostic group. Those in residence over 60 years of age were 32.8%. Therefore, the remaining 21% of those over 60 years of age had other diagnoses and for the most part grew old in the hospital. This warrants a plea for more treatment for these during the early part of their illness.

It appears that concentration on the intensive treatment of other types of mental disorders would lead to their release from the hospitals thus relieving a large part of this build up of older patients.

Present facilities of the mental hospitals have not been constructed or planned for the care of elderly patients. The situation presents itself as a problem for very definite planning and programs. Several ideas for this planning have been suggested, among which is a separate hospital for the senile-arteriosclerotic group, special buildings at existing hospitals, or a small cottage system attached to existing hospitals.

The prevention of mental illness in older people or the building up of mental health, as has been done with the physical health, is of great importance. Young people must be made aware that eventually they can expect to grow old. Plans must be made for activity of their minds in later life, because an inactive mind loses its usefulness in the same manner that an arm not used loses its strength.

In conclusion we quote the final paragraph of an article by Dr. Edward J. Stieglitz: "Finally it is most important to have a purpose greater than mere survival. Those self-centered individuals who are more important to themselves than anything that they are doing, shrink with the years in their personalities. Those who are doing something which, to them, is more important than they consider themselves to be, continue to grow through out the life span. A purpose greater than self is probably the greatest force with which we have to insure mental health until the end."[2]

REFERENCES

1—Life Insurance Fact Book 1950, Page 26, Published by Institute of Life Insurance, New York.

2—Mental Health in Virginia, Autumn 1952, Page 3, Anticipation: The Key to Mental Health in Later Maturity, by Edward J. Stieglitz, M.S., M.D., F.A.C.P.

Newscopes.

A check for $5,000 was forwarded to the Netherlands medical association for *flood relief*. . . . The AMA's Committee on Blood has joined with the American Red Cross in forming a joint *fact-finding committee* to arbitrate differences between community blood banks and area Red Cross offices. This committee will make recommendations if invited to do so by either local medical societies or Red Cross chapters. . . . *Liaison committee* composed of Drs. James R. McVay, chairman, David B. Allman and Gunnar Gundersen has been appointed by the Board of Trustees to work with the Association of State and Territorial Health Officers. . . .

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WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA

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WOMAN'S AUXILIARY TO THE
AMERICAN MEDICAL ASSOCIATION

Thirtieth Annual Meeting
New York, N.Y., June 1-5, 1953
Hotel Statler

MRS. WILLIAM J. LAVELLE, *Chairman*
MRS. ADOLPH H. EMERSON, *Co-Chairman*
Committee on Arrangements

A cordial invitation is extended to all members of the Woman's Auxiliary to the American Medical Association, their guests, and the guests of physicians attending the convention of the American Medical Association, to participate in all social functions and attend the general meetings of the Auxiliary.

Headquarters will be at the Hotel Statler. Tickets will be available at the registration desk only. Please register early and obtain your badge and program.

REGISTRATION HOURS

Sunday	12:00 M	to	4:00 P.M.
Monday	9:00 A.M.	to	4:00 P.M.
Tuesday	9:00 A.M.	to	4:00 P.M.
Wednesday	9:00 A.M.	to	4:00 P.M.
Thursday	9:00 A.M.	to	12:00 M

News from State Auxiliaries.

ALEXANDRIA

The February meeting of the ALEXANDRIA Auxiliary was a luncheon meeting, held at Hogate's Arlington House. Mrs. Viola Japhet spoke on The Visiting Nurse Service of Alexandria. In March, Mrs. John Hoyle was hostess at her home on Woodland Terrace. Mrs. Robert Anderson was co-hostess.

Business at The Shoe Center is booming. Fifty pairs of repaired shoes were distributed to needy children, referred by local welfare agencies, in three weeks time. The demand is greater than the supply, so any children's shoes, sizes 11½ to 7½, will be welcomed at The Center—that's 510 King Street. Mrs. Milton Stein, Chairman, reports that progress is being made in the building of shelves, painting and organizing The Center.

Those red carnation boutonnieres our doctors were seen wearing on March 30, Doctors' Day, were given with the compliments of the Auxiliary. Members were also responsible for Red Cross collections among our nearly one hundred physicians this year.

ARLINGTON

The Arlington Auxiliary sponsored a luncheon and fashion show at the Washington Golf and Country Club on March the 10th. All of the proceeds from this will go to the Arlington Hospital. A very large crowd attended the show which was put on by Lillian Bause Fashions of Arlington.

New Exhibit Shows How Medical Dollars Are Spent.

A new exhibit showing how the medical care dollar is distributed among physicians, hospitals, druggists, dentists and others is now available through the AMA's Bureau of Exhibits. "Where Your Medical Dollar Goes" features three-dimensional figures on a revolving pedestal. Available to state and county medical societies, this exhibit may be shown either in conjunction with such exhibits as "Health Today" and "Your Medical Care" or by itself.

European MD Contributes to AMEF.

A European-educated physician now residing in Madera, California, believes that physicians should support American medical schools. Although he owes no allegiance to any school in this country, Dr. Thomas Klein sent in a donation to the American Medical Education Foundation. His action sets an example for graduates of American medical colleges. In less than three months of this year, the Foundation has received in excess of $657,000 from more than 7,000 contributors towards its 1953 goal of two million dollars.

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BOOKS

Modern Treatment. A Guide for General Practice. By Fifty-three authors. Edited by AUSTIN SMITH, M.D., Editor of the Journal of the American Medical Association; And PAUL L. WERMER, M.D., Secretary, Committee on Research, American Medical Association. Paul B. Hoeber, Inc., New York. 1953. xv-1146 pages. Cloth. Price $20.00.

Pheochromocytoma and the General Practitioner. By JOSEPH L. DECOURCY, M.D., and CORNELIUS B. DECOURCY, M.D., DeCourcy Clinic, Cincinnati, Ohio. 1952. Cloth.

Progress In Fundamental Medicine. By PAUL CANNON, University of Chicago; J. A. CUNNINGHAM, University of Alabama; PAUL KLEMPERER, Mt. Sinai Hospital, New York; ALBERT KLIGMAN, University of Pennsylvania; G. K. MALLORY, The Mallory Institute; TRACY B. MALLORY (deceased), The Massachusetts General Hospital; J. C. PATERSON, University of Western Ontario; L. B. STODDARD, University of Kansas; W. KENNETH CUYLER, Duke University; J. P. WYATT, St. Louis University. Edited by J. F. A. McMANUS, University of Virginia. Lea & Febiger, Philadelphia, 1952. 316 pages, with 74 illustrations and 2 colored plates. Cloth. Price $9.00

It would seem to this reviewer that the purpose of this volume, to provide concise and authoritative discussions of fundamental problems in medicine, has been achieved very well. The authors of individual sections are well-qualified to provide perspective, a comprehensive survey and proper emphasis in their particular subjects. While much of the book will be of special interest to the pathologist, there are many aspects which have direct clinical implications of interest to the general practitioner, internist, surgeon, gynecologist and industrial physician.

Each author has included an extensive bibliography which enhances the value of the summations immensely. They may be regarded as key references which stand out from the innumerable articles appearing in numerous journals. There has been admirable success in keeping articles of such a summary and review nature from being dry and tedious; they are mostly easily readable and enjoyable.

The need for "bringing up to date" through review of broad problems by qualified experts seems very definite. It is believed this book will fill that need, and it is hoped that additional medical subjects of a fundamental nature will be treated similarly in future volumes of this type. H.F.

Cardiac Therapy. By HAROLD J. STEWART, M.D., Associate Professor of Medicine, Cornell University Medical College, New York; Attending Physician, New York Hospital; etc. Paul B. Hoeber, Inc., New York. 1952. x-622 pages. Illustrated. Cloth. Price $10.00.

This reviewer found this to be a well written, clearly defined approach to the therapy of cardiovascular disease. There is some repetition which serves however to emphasize important factors in cardiac disease and is not objectionable. Throughout the pages of the book the author carries on a feud with the Harry Gold school of digitoxin usage without once mentioning that worthy's name. However, his insistence that 1.8 milligrams of digitoxin is the only valid digitalizing dose recurs in almost every situation where it is pertinent. The first five chapters can be read with equal value by both the novice and the experienced cardiologist. They are an extremely lucid presentation of the subjects of congestive heart failure, mercurial diuretics, digitalis, anticoagulant drugs and irregularities of the heart. The chapter entitled, "What To Tell Patients About Their Heart Disease" is extremely valuable to anyone treating cardiac disease.

On the whole, this book is adequate and well written and would make a welcome addition to the library of most practitioners.

L.D.P.

Therapeutic Meal Plans. A New Diet Manual. Prepared by the Department of Dietetics and Nutrition, University of Kansas School of Medicine. Edited by Virginia Toews, Berdena Rosenow, and Ruth Gordon, Dietitians. University of Kansas Press, Lawrence, Kansas. 1952. 111 pages. Cloth. Price $3.00.

This manual, containing a wealth of compact information on therapeutic diets, should be of special benefit to dietitions and nutritionists as well as to the busy practitioner.

Routine hospital diets are listed, following by therapeutic diets divided into eleven groups according to the way in which they vary from the normal, (for example, caloric variations, salt variations, etc.). For each diet there is given (1) approximate composition for protein, fat, calories, minerals and vitamins; (2) necessary foods; (3) additional foods; (4) special rules; (5) foods to omit, and (6) suggested meals. There is a table of average servings which standardizes amounts; this and twenty-two other tables throughout the book are good for quick reference, as is the index.

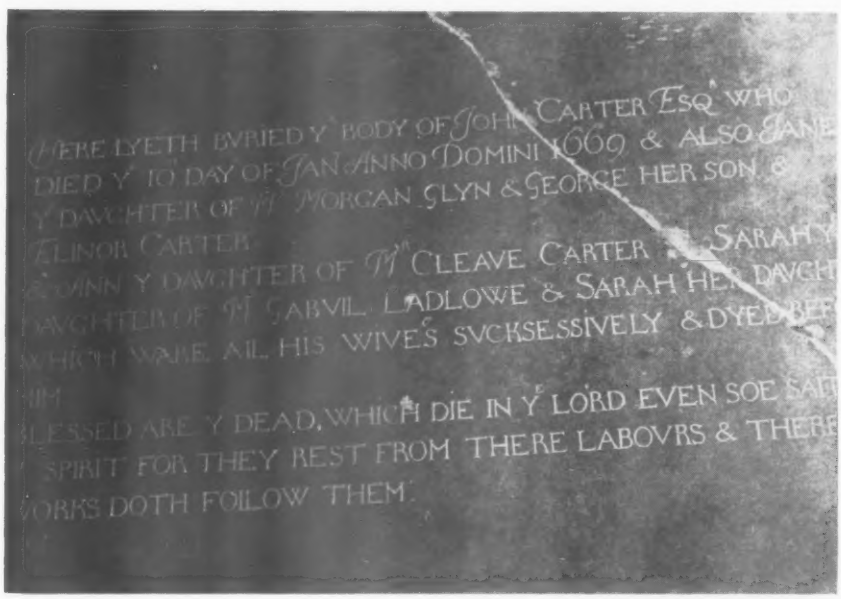
The dietitions who edited this little manual are to be commended on its completeness. They designed it primarily for use at the University of Kansas School of Medicine but it could well be used as a basic or supplementary (reference) manual of diets by hospitals or clinics elsewhere. E.A.L. AND E.M.B.

XUM

EDITORIAL

John Carter and His Five Wives

THE most provocative tombstone in Virginia is in Lancaster County in old Christ Church. It marks the grave of John Carter and four of his five wives. Buried also with them are George, the son of the first wife, and Sarah, the daughter of the fourth. The church itself is well worth a visit. The original church was a wooden structure built in 1670 by John Carter, the immigrant. The congregation outgrew this structure and there was a movement to build the new church in a more accessible location. Robert, the son of John, who was also known as King Carter, offered to build the new Church at his own expense if the location were not changed. It was completed in 1732, the year of Robert Carter's death. The building stands today as it was originally built. There have been no remodeling nor "improvements". Bishop Meade in "Old Churches, Ministers and Families of Virginia" (1857) says that the vestry book is unique in that the names of John Carter, John his eldest son, and Robert appear at the head of the vestry-lists even ahead of the minister. The inscription on John Carter's tomb, which is now within the enlarged church, is quite ambiguous and the Bishop misinterpreted it, and his mistake is perpetuated in the guide books of today. (Virginia: A Guide to the Old Dominion, 1941)


HERE LYETH BVRIED Y BODY OF JOHN CARTER ESQ WHO
DIED Y 10 DAY OF JAN ANNO DOMINI 1669 & ALSO JANE
Y DAVGHTER OF M MORGAN GLYN & GEORGE HER SON &
ELINOR CARTER
OHNN Y DAVGHTER OF M CLEAVE CARTER & SARAH Y
DAVGHTER OF M SABVIL LADLOWE & SARAH HER DAVGH
WHICH WARE AIL HIS WIVES SVCKSESSIVELY & DYED BE
HIM
BLESSED ARE Y DEAD WHICH DIE IN Y LORD EVEN SOE SAIT
SPIRIT FOR THEY REST FROM THERE LABOVRS & THERE
ORKS DOTH FOILOW THEM

The names of the five wives are: (1), Jane Glynn, the mother of George, John, and Elizabeth; (2) Elinor Eltonhead, widow of Broca, n.i.; (3) Anne Carter, n.i., who brought to him the Cleve Carter estate; (4) Sarah Ludlow, the mother of Robert (King) Carter from whom most of the Virginia Carters are descended; and (5) Elizabeth Shirley (or Shirlock), who survived her husband and bore him one son, Charles, who did not grow to manhood. The unproductive wives (nos. 2 and 5) were beneath the notice of the good Bishop.

What are the medical implications of this tombstone? That a man could within 20 years and without the aid of either murder or divorce marry so many times, did not

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excite comment in those days. To be fruitful, multiply, and possess the earth, was the spirit of the Virginia frontier. To marry five times was not unusual in those days. Women entered the Holy state of matrimony at a tender age, bore many children and died young. A husband, after a respectable period of mourning, but more frequently without, usually remarried and continued to add to his family, and perchance to his fortune. However, not all the multiple marriages were on the male side. Widows were as quick to remarry as were widowers and some had the hardihood to remarry many times. The mother of Mrs. Elizabeth Carter of Lancaster County married six times.*

Two of John Carter's marriages were sterile, a surprisingly high percentage, but we know that sterile marriages were not uncommon. In families based on a series of many marriages, sterile matings had a tendency of being overlooked. John Washington, the immigrant, married three times and two of his marriages were infertile. In the next century the Father of His Country had no children, as is well known. Edmund Pendleton is another well known case of childlessness. His teen-age bride died in her first labor leaving a stillborn child. His second matrimonial venture was entirely fruitless. The families of less prominent Virginians show many instances of sterile matings. Most of them were due to relative infertility for the widows and widowers involved had children in previous or subsequent unions.

There was opportunity to study only one partner of a sterile mating in Colonial Virginia for death was the only end of marriage. Even a court order of separation was unheard of and the only divorce was that of Alice Clawson of Northampton County whose husband refused to give up his Indian concubine when he returned from reigning as principal chief of the Nanicokes (1655). Some one hundred and sixty years after this Josephine and Napoleon gave the world the classic example of relative sterility. Together they were unable to have a child, but each had issue by other mates.

The fewness of children per wife in John Carter's family is somewhat surprising especially to those of us who have been used to hearing about the wonderful fecundity of some of Virginia's aristocrats. William Byrd III, Lewis Burwell, Warner Washington, Mann Page, and Thomas Marshall each sired fifteen children, the 3rd Robert Carter seventeen, John Page twenty, and Charles Carter of Shirley twenty-three. Such fertility, while startling, was exceptional and did not lead to a great increase in population. The main factor in population growth or lack of growth in early Virginia was the tremendous and widespread infant mortality. According to Bruce, the average colonial family consisted of five persons.

Our four ladies who shared John Carter's tomb and the fifth who survived him do not support the rather prevalent idea that maternal mortality was high in those days. In the first place two of the five bore no children and in the second place none died shortly after giving birth. Of course there may have been deaths caused by complications of pregnancy—toxemias, hemorrhage, ectopic pregnancy or abortion. Little is said about miscarriages but we know that they did occur. From William Byrd's Diary we learn that little attention was paid to them, about as much as to profuse menstruation. As already stated, the first Mrs. Edmund Pendleton died in labor and other cases can be found in the biographies of early Virginians.

The effect of child bearing upon maternal health is not so apparent. A notable example is Mrs. Thomas Jefferson who bore her husband six children within ten years. Mr. Jefferson was constantly worried about her health and one gets the im-

*Va. Mag. of History & Biography V. 2 p. 237.

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pression that he considered her frequent pregnancies to be at the bottom of her poor health. She died before she was thirty-four. Jefferson was an uncommonly observant man. He never remarried. The average man under such circumstances promptly found a new wife and continued his reproductive habits.

All are agreed that there was tremendous infant mortality. This was attributed to the long hot summers. How far back goes the old adage that it took unusual stamina to survive the second summer, we do not know, but it could easily date back to this period. Breast milk from either the mother or a wet nurse was well nigh universal and protected the infant to some extent at least through the first summer. Tuberculo is undoubtedly took its toll, for fresh air was greatly feared in olden times. There is little evidence that syphilis played any part in the excessive infant mortality or that it existed in the adults for that matter. Early marriage and quick remarriage in case of widowhood should have reduced promiscuity and consequently the incidence of venereal disease, but the continuity of the marriage state would have prolonged an existing infection and deprived the several wives of the natural curative effect of many pregnancies. In other words a syphilitic husband and five wives having say fifteen pregnancies between them would be likely to have several infected wives and many luetic children for none would have the therapeutic benefit that many pregnancies confer on a syphilitic mother, but if one woman bore him the fifteen children the younger children would probably be free from lues. All we can say is that the custom of early and repeated marriages that pertained in Colonial Virginia was in some respects conducive to congenital lues and in other respects it was not. Which was the greater influence we may never know.

The Tri-State Medical Journal

NUMBER one of volume one of the new organ of the Tri-State Medical Association of the Carolinas and Virginia came early in April. It has an attractive format and the usual contents of a medical association journal. In addition, the present number has salutes from each of the six medical schools in the Tri-State area. All six agree that there is a place for the new Journal but advance various reasons for their beliefs. Dr. Sanger, of the Medical College of Virginia, calls attention to the value of medical writing in the continuing post-graduate educational program. Not only does it advance medical knowledge, but it benefits the author in no uncertain way. The president, Dr. Gray Dixon, explains the new journal with the cliché, a "new broom sweeps clean". We hope that the "comfort of an old shoe" or the "wisdom of an old head" will not be forgotten.

At the end of fifty years in medicine I can testify to the value of medical associations and their official publications. One leaves one's *Alma Mater* with a store of information and inspiration that quickly becomes worthless unless it is constantly renewed. This can best be accomplished in one's local, state, regional, or special society. A well worked up paper or case report, presented and discussed in the meeting and published in its journal may benefit every one taking part in the exercise, but the one who reaps the greatest benefit is the author. There are still too few medical societies to fulfill adequately this phase of continuing post graduate training.

The *Monthly* sends greetings and best wishes to the *Tri-State Medical Journal.*

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PRESIDENT'S PAGE

Acceptance Remarks of Dr. James L. Hamner
Outline of Objectives and Comment on Progress.

IN HIS acceptance remarks of the presidency of The Medical Society of Virginia, last Fall, your president Dr. Hamner, outlined certain objectives for his year in office. Some of these are thought to be of sufficient importance to bring to your attenion again. This is particularly true since so few members were present at this installation meeting, and all of us are so prone to forget. Too, some progress has been made. You should know about this.

I want, again, to thank you for this opportunity of service and the privilege of association with the fine men and women of the society. I also want to thank all of you for your encouragement and your willingness to help. This is evidenced by the cooperative spirit shown by so many capable and busy people in accepting the responsibility of committee membership and leadership. This is most important since the society has become so large and its activities so numerous that headquarters office, the council and the president could never do justice to the job of running it without good, active committees.

Believing, as I do, that the presidency is a privilege and should be a continuing service, I shall continue to work for the continuation of improvements started by my predecessors, as well as for the creation of new activities, new committees and other changes which may seem helpful.

The society should be strengthened in membership and in framework. With several hundred eligible physicians actively practicing in Virginia, who are not members of our society, the local and component societies should survey their areas and make every effort to get them as members. The names of several excellent men have had to be removed from the list of suggested committee members because they were not members of the State Society.

The framework of the State Society will be strengthened when district or component societies add new members, help to form active district councils, create grievance committees and work for more active public relations programs.

The brochure printed and distributed by the society to help people in selecting prepayment insurance of all kinds, should help clarify many confused minds, but it is up to us to assume active leadership in the management of Blue Shield, and in the stimulation of interest in Blue Cross and in commercial insurance companies which sell prepayment medical and hospital insurance. Adequate coverage of our people with voluntary insurance would be a tremendous blow to the efforts of people who wish to force compulsory insurance upon us.

To aid our medical schools in expanding and meeting added expenses necessary to educate the needed doctors, we must actively support the American Medical Education Foundation. An active committee, under the able leadership of Dr. Marcellus A. Johnson, Jr., of Roanoke, has been created for this purpose. Everyone is urged to support this program to prevent Federal Aid and ultimate control of our medical schools by the government.

We have lost one delegate to the American Medical Association because of the failure of our members to pay their A. M. A. dues. We can ill afford to lose this delegate. We must put on an active campaign and get our members to pay their dues and regain this needed representation.

All of our committees should be strengthened but our Legislative Committee needs

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our active support. It should deal not only with State Legislation but it should actively support the Legislative Committee of the A. M. A. in matters of National Legislation.

We were asked to appoint a Liaison Committee to work with the area director of the Welfare and Retirement Fund of the United Mine Workers. This is an important work. The Committee was authorized and the best possible membership selections have been made.

Better definitions of veteran's medical rights should be sought and a better system of treatment and an adjustment of the contracts between the Medical Society of Virginia and the Veterans Administration seems needed. Our Medical Service Committee is actively at work on this.

With 12,000,000 to 15,000,000 people above 65 years of age, and the many younger people who are crippled by accidents, polio, rheumatic fever, tuberculosis, and other chronic disabling diseases, it seems proper that the Medical Society should initiate a program for the treatment and rehabilitation of more of these people. Work with our State Boards of Health and Education should be started at once for the expansion of present facilities or the creation of new ones for that purpose. These people present real socio-economic problems and they must be looked out for.

Our Society should seek to more actively work with, and support existing health agencies and organizations which contribute to better health standards in Virginia. A conference with our State Boards of Health, Education, Dental, Pharmacy and Nursing Associations should be most helpful. Local health councils over the state and active cooperation with, and support of the Virginia Council on Health and Medical Care, should be most helpful in working out such a program.

Our already excellent Public Relations Program should be broadened and given more general support. The annual meeting of the Public Relations Committee in Roanoke, in January was a real eye opener. Many excellent thoughts were brought out. People should be urged to secure family physicians who will take care of their needs. To be sure that medical care will always be available, every county, town and city should create an emergency panel of physicians who, by rotating their services, could provide adequate medical care on Sundays, holidays and at night. Grievance Committees should be created by all societies and publicity given such action.

We should individually, and as a society, try to impress upon the people the importance of developing a sense of responsibility for themselves and their dependents. The doctor should not be held responsible for the medical needs of people who make no effort for themselves. We must try to educate them to share their part of the load.

The members of the profession, health clinics and organizations, and our medical colleges are carrying a lion's share of the free health and medical care load. These and many other services rendered by the profession and allied agencies are seldom mentioned, while any, even minor, adverse criticism of the doctor's efforts makes the headlines. We should get out of our shells and let the press have our side of the story too. That should be of invaluable aid.

Our Woman's Auxiliary, it seems to me, should be our greatest asset, particularly in public relations. They are anxiously waiting to be given something to do. They can do more for good public relations than any of our allied groups. This was greatly emphasized at the Annual Public Relations meeting. The Council has made some definite strides toward bringing the Auxiliary into the position it so well deserves. It is hoped to have representation from the Auxiliary attend the meetings of the Council and the House of Delegates. Too, it is hoped that our annual budget will provide funds for certain of their activities. They need and deserve our encouragement and support. Let us all urge our wives to join the Auxiliary and support it in any way

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possible. I know the Auxiliary can and will, if given an opportunity, be our most valuable aid.

No mention was made of Civil Defense last October. An excellent committee has been organized under the able leadership of Dr. Fletcher J. Wright, of Petersburg. They have met and are trying hard to do a good job.

Every member of the Society and the Auxiliary should think of and be ready, always, to help in this undertaking. Civil Defense is Everybody's Business.

The field which seemed so large last October has continued to expand. The job which seemed so tremendous has continued to grow. The loyal support of the headquarters staff, and of all the profession, which was needed and requested, has made many things possible, however, and we hope success will be ours.

Just as our program is the product of many minds, the achievement of our objectives will be the result of the all out cooperation of all of us. At this midway point, the light of success seems brighter than on October 1st of last year. You are urged to help us keep pulling and pushing. Without your help we cannot succeed, with it, all of our objectives are possible. They seem worthwhile and worth working for. Let's not lose anyone of them.

SOCIETIES

The Danville-Pittsylvania Academy of Medicine

Held its regular monthly meeting on March 13, at which time Dr. Edward C. Curnen, Jr., Professor of Pediatrics at the University of North Carolina Medical School, Chapel Hill, talked on "The Recognition and Management of Acute Rheumatic Fever".

The physicians of the Academy volunteered their services in performing physical examinations on the football players in the local high schools next fall and will have a physician in attendance at all scheduled games.

WALTER C. FITZGERALD,
Secretary-Treasurer.

Patrick-Henry Medical Society.

Dr. D. L. Fleshman of Bassett is president for this year of the Patrick-Henry Medical Society, Dr. D. H. Mason of Ridgeway vice-president, and Dr. T. H. Dickerson of Martinsville secretary-treasurer.

Lynchburg Academy of Medicine.

At the regular monthly meeting of the Academy on March 9, at the Lynchburg General Hospital, Dr. G. Slaughter Fitz-Hugh of the University of Virginia spoke on "Maxilla Facial Surgery in Traumatic Injuries".

At a business meeting, Dr. George E. Calvert and Dr. Lloyd C. Agnew were received into full membership, having served the required waiting period of one year.

FRANK N. BUCK, JR.,
Secretary-Treasurer.

The Fairfax County Medical Society

Met on March 10th, at the home of Dr. John Zylman, in Arlington.

Dr. James Lafter was accepted for membership, and expects to practice in Falls Church. Dr. Mulvaney was also accepted for membership, and he expects to practice in McLean.

Dr. Riesenman gave a talk on paralyses of nervous origin.

The next meeting will be held on the second Tuesday in April, at a place to be announced.

ALICE H. KIESSLING,
Publicity Chairman.

NEWS

Tribute to Dr. W. T. Graham.

On March 19, a portrait of Dr. William Tate Graham was presented to the Crippled Children's Hospital of Richmond by the administrative and medical staff of the hospital in recognition of the splendid service he has rendered that institution. The presentation was made by Dr. James T. Tucker.

Dr. Graham and Miss Nannie Minor, then a vis-

iting nurse, established a small clinic for children afflicted in an infantile paralysis epidemic thirty-four years ago and, from a small beginning, the venture has grown to a 120-bed hospital of which Dr. Graham has been surgeon-in-chief since its beginning. The non-profit institution has continued and grown through gifts of time, money and professional services by individuals, civic and fraternal organizations, together with partial support from the Crippled Children's Bureau of the State Department of Health.

Dr. Nicholls Retires.

Dr. J. B. Nicholls retired as superintendent and medical director of Catawba Sanatorium on March 1, after completing a service of thirty-six years with the sanatorium. He first joined the staff of Catawba as an assistant physician in 1917, but four years later was appointed medical director. While connected with the staff, the sanatorium grew from 168 beds in 1917 to a total of 440 beds in 1953. As stated in a tribute to him in the *Roanoke Times*, "Now that * * * Dr. Nicholls, at 65, thinks he should retire, surely, he has earned a rest." He has returned to his home State of North Carolina.

In Charge of Catawba Sanatorium.

Dr. Mack I. Shanholtz, State Health Commissioner, has announced the appointment of Dr. Cecil C. Smith as Superintendent and Medical Director of Catawba Sanatorium, effective April 15. Dr. Smith, a native of Alabama, received his M.D. degree from Emory University and his M.P.H. degree from Johns Hopkins University. Before assuming his duties at Catawba, he was connected with a Veterans Administration Tuberculosis center in Mississippi. Dr. Smith is replacing Dr. J. B. Nicholls who retired on March 1.

AMA Meeting to Be Aired on Radio and TV.

Physicians who cannot attend the AMA's 102nd annual convention can see and hear highlights of the meeting via radio and television.

The presidential inaugural ceremony will be broadcast coast to coast on Wednesday, June 3. Although the inauguration of President-Elect Edward J. McCormick will be held Tuesday, the coronation of Queen Elizabeth II of England on the same day—which will be widely covered by radio and television—has made it necessary to re-broadcast the proceedings on Wednesday evening.

In television areas, the half-hour "March of Medicine" program, originating at the Scientific Exhibit in New York's Grand Central Palace, will be presented either Thursday or Friday evening. This television coverage will be sponsored by Smith, Kline and French, Philadelphia pharmaceutical firm.

AMA Exhibits Face Big Year.

To all four corners of the country go AMA exhibits! These exhibits are displayed not only at AMA annual and clinical meetings but also at home and food shows, automobile shows, farm shows, state and county fairs, and over television. So far in 1953 there have been 130 exhibition days in seven states. Bookings now on hand total 187 days of exhibit showings in 21 states, with a total of 43 different showings already scheduled.

So popular has been the display entitled "Testing the Drinking Driver" that two copies were prepared. Last year one of these was shown 96 days before 19 different groups in nine states, while the other copy was shown 84 days before 22 groups in 11 states. All bookings are handled through the Bureau of Exhibits.

Dr. Blanton Honored.

Dr. Wyndham B. Blanton, Richmond, was made vice-president of the American Academy of Allergy at its recent meeting in Boston. He has also been recently appointed to the Editorial Board of the Bulletin of the History of Medicine published by the Johns-Hopkins University.

Dr. A. B. Gravatt, Jr.,

Kilmarnock, has been elected president of the Kilmarnock-Irvington-White Stone Rotary Club.

Change of Directors in Health Districts.

Dr. Laurence T. Giles, who has been acting health director of Fredericksburg and three nearby counties, since last Fall, substituting for Dr. H. D. Crow who has been doing special work with the State Department of Health, left April 1 to become health director of the district embracing Prince William, Fauquier and Rappahannock Counties. He has headquarters in Warrenton.

The American Therapeutic Society

Will hold its annual meeting in the Hotel Biltmore, New York City, on May 28-31. Outstanding in the program will be a symposium on Tobacco, with Dr. Arthur C. Degraff of New York as moderator. A Round Table discussion will follow the presentation of these seven papers. In addition to this,

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there will be two symposiums on "Recent Advances in Medicine" by Dr. O. P. J. Falk of St. Louis, and "Recent Advances in Surgery" by Dr. W. Wayne Babcock of Philadelphia. One entire day will be devoted to new items in the therapeutic armamentarium. Guests are welcome to these scientific sessions.

Further information may be obtained from Dr. Oscar B. Hunter, Jr., Secretary, 915-19th Street, N.W., Washington 6, D. C.

Correction for Tumor Clinics.

On page 246, of the April *Monthly*, days for the Clinics at the Medical College of Virginia, Richmond, should *not* have included Wednesday. The days for Richmond should be:

Tuesday—General, 8:30 A.M.
Thursday—Gyn, 8:30 A.M.
Head and Neck, 8:30 A.M.
Friday—G.U., 12:00 Noon.

Dr. Austin I. Dodson, Jr.,

Class of '46, Medical College of Virginia, after service in the U. S. Navy, has located in Richmond and is associated with his father in Medical Arts Building.

Virginia Surgical Society.

The first business meeting of this Society will be held at 2:00 p.m. on Saturday, May 23rd, at the Richmond Academy of Medicine, 1200 East Clay Street, Richmond. Purpose of this meeting is to adopt a constitution and to elect officers for the coming year.

A luncheon will be served for members and their wives at 12:30 p.m. in the dining room of the Academy. Reservations for the luncheon can be made in advance to the secretary, W. M. Hill, M.D., 401 West Grace Street, Richmond.

Dr. J. Coleman Motley,

Lottsburg, was elected first vice-president of the newly formed Lions Club of Northumberland County, at its organizational meeting March 23.

Dr. Armistead D. Williams

Has been elected president of the Richmond Area Heart Association, the new name given to the former Richmond Chapter of the American Heart Association. Dr. Reno Porter has been named second vice-president.

A Graduate Course in Recent Advances in Cardiac Therapy

Will be given by the Kanawha Medical Society September 16, 1953 at Charleston, W. Va. This one-day course will be presented with the aid of "Lantern Slides" and the talks will be informal. It is the hope of the committee, that the physicans will be presented with practical points of treatment to aid them in their everyday practice.

The members of the faculty will include:

Charles P. Bailey, M.D.——Philadelphia, Pa.
Ralph E. Dolkart, M.D.——Chicago, Illinois
R. W. Kissane, M.D.——Columbus, Ohio
Edward S. Orgain, M.D.——Durham, N. C.
Francis F. Rosenbaum, M.D.——Milwaukee, Wisc.

The West Virginia Academy of General Practice

Is to hold its first annual assembly at the Daniel Boone Hotel, Charleston, W. Va., Saturday and Sunday, May 16 and 17. They have arranged an excellent program with twelve out-of-State medical guest speakers, each distinguished in his special field. There will also be a Panel discussion and a Symposium with local doctors as moderators. Dr. Edward E. Haddock, Richmond, Va., Mayor of that city and recent president of the Virginia A.G.P., will be speaker at the banquet to be held on Saturday evening. There will also be a program for the ladies. Make plans to attend by writing directly to the Reservation Manager, Daniel Boone Hotel, Charleston, W. Va., who will confirm reservations.

Dr. Charles M. Caravati,

Richmond, participated in the Sixth Annual Medical Symposium in Greensboro Academy of Medicine, Greensboro, N. C., on March 25, and presented a paper on "Lesions of the Distal Stomach".

Dr. Richard N. Baylor,

Richmond, who has been a medical examiner, part time, with the Richmond Employees' Medical Service, resigned this position April 17 with the view of accepting a medical position with a private company.

Dr. Granville L. Jones,

Superintendent of Eastern State Hospital, Williamsburg, has been re-elected president of the Williamsburg Community Council, an organization of civic groups.

Medical College of Virginia Alumni Association.

Dr. J. Asa Shield of Richmond will be installed as president of the Medical College of Virginia

Alumni Association at its annual meeting on June 1. J. Curtis Nottingham of Richmond, executive secretary of the Virginia Pharmaceutical Association, has been made president-elect and will take office in 1954. Medical vice-president will be Rear Admiral Sterling S. Cook of Norfolk, chief medical officer of the Fifth Naval District, Dr. John A. Tolley of Arlington will be dental vice-president, G. W. Hook of Manassas will be vice-president from pharmacy, and Mrs. Sabra Sturt Sadler vice-president from nursing.

Dr. Richard L. Simpson of Richmond was elected secretary and Dr. Harvey B. Haag was re-elected to his tenth term as treasurer. New members of the Association's Board of Trustees are Dr. Richard A. Michaux, Dr. Robert V. Terrell, Dr. J. J. Stigall, Miss Dorsye Russell, Lloyd C. Bird and E. Claiborne Robins.

Dr. C. L. Outland of Richmond has been appointed chairman of the 1953 Alumni Reunion, which will be held on June 1. The program will include a golf tournament, the annual business meeting of the Association at 3:00 P.M. at the Alumni House and the annual social hour, banquet and dance at the John Marshall Hotel on Monday night.

A Joint Meeting.

The Virginia Society for Pathology and Laboratory Medicine and the Virginia Society of Medical Technologists and Laboratory Technicians, Inc., held a Joint Session at the Hotel John Marshall on January 17, 1953. This meeting was the first of the annual sessions which these two organizations plan to hold. The program was arranged by Dr. H. G. Kupfer, of the Medical College of Virginia.

At the business meeting of the Pathologists, the evaluation studies on clinical chemistry which the Society has been conducting for over a year, were discussed. It is anticipated to broaden the evaluations to include febrile agglutination determinations.

Annual Assembly in Otolaryngology.

The Department of Otolaryngology, University of Illinois College of Medicine, announces its Annual Assembly in Otolaryngology, divided into sections:

A. Basic Section, September 21 through 26, 1953, devoted to surgical anatomy and cadaver dissection of the head and neck, and histopathology of the ear, nose and throat, under the direction of Dr. M. F. Snitman.

B. Clinical Section, September 28 through October 3, 1953, consisting of lectures and panel discussions, with group participation of otolaryngological problems and current trends in medical and surgical management.

Registration will be limited. Application for attendance at one or both sections will be optional. For information write to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

The International Academy of Proctology.

All physicians are cordially invited to attend the Fifth Annual Convention of the International Academy of Proctology to be held at the Plaza Hotel, New York City, May 29, 30 and 31st, directly preceding the American Medical Association 1953 meeting. The meeting this year will be extended to include a Surgical Clinic and Seminar at Jersey City Medical Center under the direction of Dr. Earl J. Halligan. The "Wet Clinic" and Seminar will be on May 28th. An extensive Motion Picture Seminar of Proctologic Surgery (including office techniques) will be held on May 31st. All scientific papers will present the latest developments in proctology and gastroenterology.

Because general practitioners, as well as gastroenterologists and proctologists, face proctologic problems in their daily practice, much of the program has been planned to answer their questions. There is no fee for attendance.

The program will be available upon request to the Executive Offices of the International Academy of Proctology, 43-55 Kissena Blvd., Flushing, New York.

Virginia Doctors Speak in Philadelphia.

Dr. Thomas W. Murrell of Richmond and Dr. Chester D. Bradley of Newport News addressed the Section on History of the College of Physicians in Philadelphia on March 26. Dr. Murrell spoke on "The Exodus of the Southern Medical Students from Philadelphia in 1859." Dr. Bradley's subject was "Dr. Craven and the Shackling of Jefferson Davis."

Dr. Thomas E. Hughes,

Who recently retired from practice in Richmond, has opened offices at 120 South Royal Avenue, Front Royal, for the practice of otolaryngology. His home is Aspen Dale Farm at Delaplane in Fauquier County.

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Seeds for Democracy.

This is a self help program introduced two years ago by the Committee for Free Asia in an international project to illustrate the concern and friendship for other peoples. The need is for vegetable seed as these do not reproduce well in the Philippine Islands and must be imported which makes them costly. The drive will be conducted through September 21, 1953. Full information about the seeds needed and how to be shipped may be received from Seeds for Democracy, Committee for Free Asia, 105 Market Street, San Francisco, California.

Doctor's Office

For rent in a professional building, 1400 Colonial Avenue, Norfolk, Virginia. 2nd floor, 4 large rooms, heat and all utilities furnished. $160 per month, immediate possession. H. W. Holland and Company, 506 Western Union Building, Norfolk, Virginia. Dial 27496 or 27704.

Wanted

Physician for the staff of the DeJarnette State Sanatorium, Staunton, Virginia. This is a psychiatric hospital of approximately 180-bed capacity. Starting salary $8,400.00 to $8,784.00 depending upon qualifications. Apply to the Superintendent.

OBITUARIES

Dr. Robert L. Corbell, Sr.,

Who had lived in Portsmouth for fifty-five years, died March 24, after a brief illness. He was a native of Nansemond County and 81 years of age. Dr. Corbell graduated at the Medical College of Virginia in 1898, joined The Medical Society of Virginia that year and had been a Life member of it for several years. In addition to his other work, he was coroner of Portsmouth for approximately twelve years. His wife and four children, one of them Dr. R. L. Corbell, Jr., survive him.

Dr. Gilmer G. Holland.

We, the members of the Tri-County Medical Society, wish to pay memory to our beloved colleague and member, Dr. Gilmer G. Holland of Holland, Va. Dr. Holland died February 13, 1953, at the age of 59 years.

His passing took from the profession one of the true Family physicians. Dr. Holland began practice with his father in the town of his birth upon his graduation from the Medical College of Virginia in 1920. He served his own community throughout his entire life. He served his people faithfully as their physician and friend.

His funeral was attended by his friends from all walks of life and the tributes paid far exceeded any in this committee's memory. He was truly the Beloved Physician.

THEREFORE BE IT RESOLVED:

FIRST, that we thank God for his life and his devotion to his Profession;

SECOND, that we extend our deepest sympathy to his devoted family;

BE IT FURTHERMORE RESOLVED, that a copy of these resolutions be spread upon the minutes of this Society, a copy be sent to his family, and another copy to the VIRGINIA MEDICAL MONTHLY for publication.

W. HOLMES CHAPMAN, JR.
J. W. LAMBDIN
F. IVAN STEELE
Committee

Dr. H. Mason Wingfield,

Richmond died March 21, having become ill while visiting at the home of a friend. He was forty-eight years of age and a graduate of the Medical College of Virginia in 1934. Shortly thereafter, he started practice in Richmond. He was a member of the board of directors of the Richmond Chapter of the American Academy of General Practice, and was a member of his local and State medical societies as well as of the American Medical Association. He is survived by his mother, a daughter and two brothers.

Captain Harry Buyer La Favre, MC, USN, (Ret.)

The members of the Princess Anne County Medical Society stood for one minute in silent tribute to the memory of Dr. La Favre at their regularly monthly meeting on March 6th. Dr. La Favre died Wednesday, February 18th. at 9 P. M. at the Portsmouth Naval Hospital after a protracted illness.

A career Naval medical officer, he had spent 30 years in the service and was veteran of two World Wars. He established and commanded a Naval hospital at Casablanca, as well as the medical forces ashore, until June 1945. He then returned to the United States and established a 2,000 bed hospital at Medford, Oregon, which he commanded until after the Japanese surrender.

In July 1950 he entered private practice at Virginia Beach and was house physician of the Mayflower apartments. He was a former secretary of the Princess Anne County Medical Society and a member of the Galilee Episcopal church.

Dr. La Favre was a genteel gentleman, kind and gracious in his manner, and highly accomplished in his professional attainments. In his passing the community and the medical profession has suffered a great loss.

As a memorial to him we ask that this be recorded in the minutes of the Society and a copy be sent to the family and to the Virginia Medical Monthly.

(Signed) CORA Z. CORPENING, *Chairman*
ROBERT W. WOODHOUSE, JR.
KATHRYN D. HILL

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